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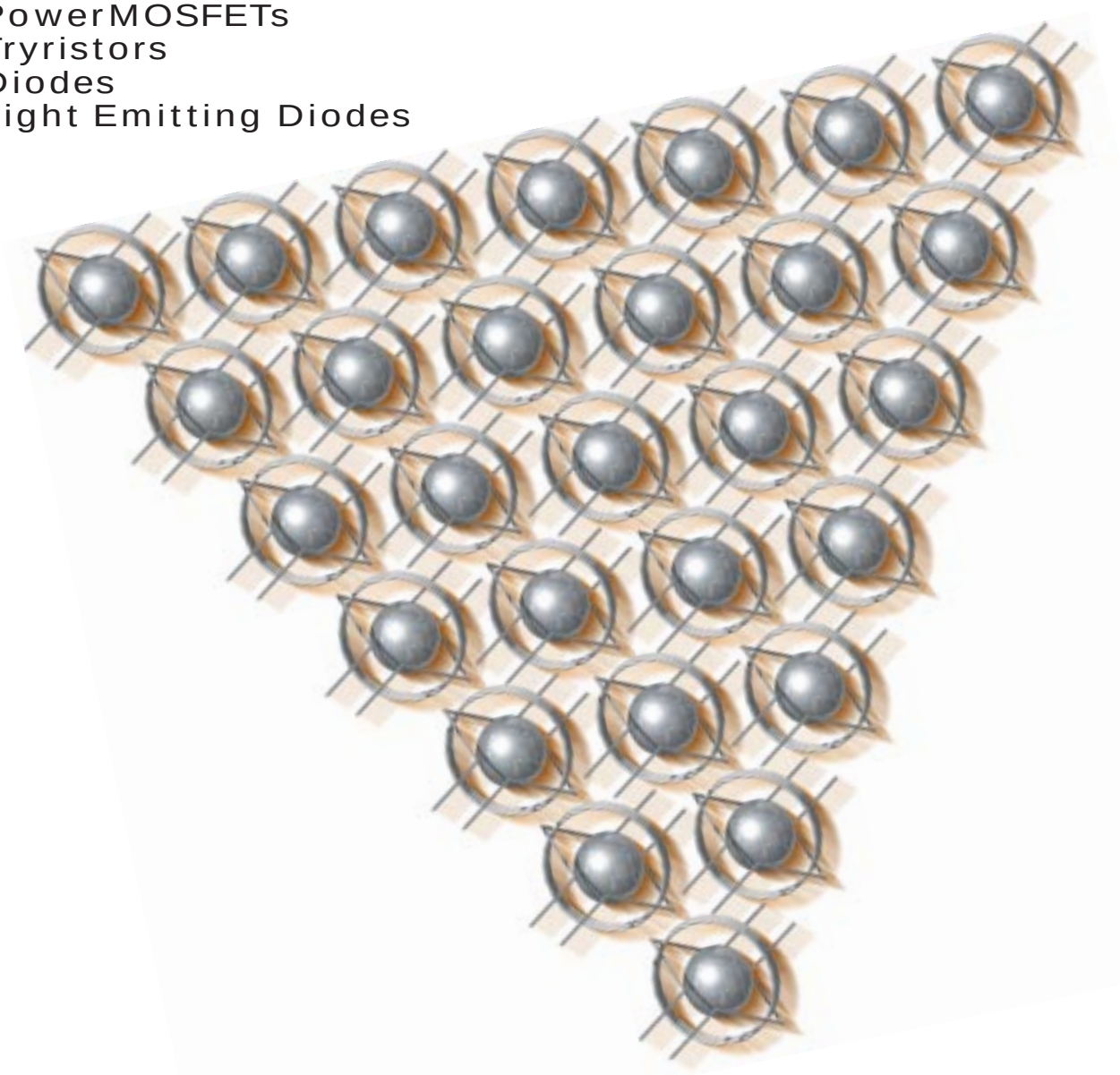
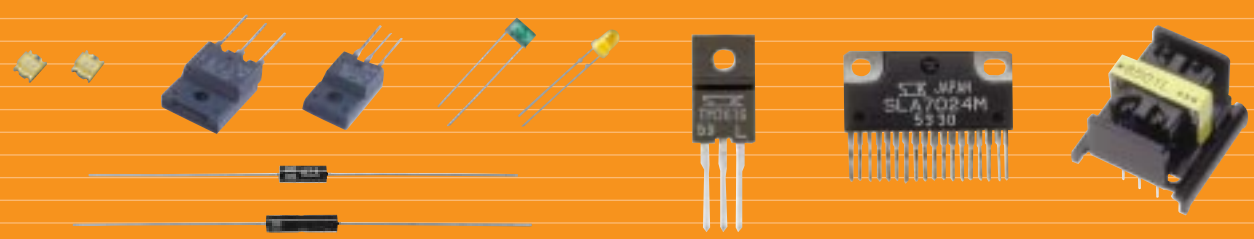
Bulletin No
O01EC0
(JAN.,1998)

SanKen

SEMICONDUCTORS SHORT FORM CATALOG

Power ICs
Power Transistors
PowerMOSFETs
Tryristors
Diodes
Light Emitting Diodes





SANKEN SEMICONDUCTORS

SEARCH (Type No. Order)

Contents

*This catalog gives an overview of SANKEN semiconductors. Contact a representative for details.

1 ICs

1-1. IC Regulators (Refer to the individual specifications for measurement requirments of the electrical characteristics.)

Surface Mount Switching Type IC Regulators

Type No.	Absolute Maximum Ratings		Recommended Operating Conditions			Electrical Characteristics (Ta = 25°C)			Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Storage Temperature Tstg (°C)	DC Input Voltage Range V_{IN} (V)	Output Current Range Io (A)	Operating Temperature Top (°C)	Output Voltage Vo (V)	Efficiency η (%) typ	Switching Frequency f (kHz) typ		
SAI01	35	–40 to +125	7 to 33	0 to 0.5	–30 to +125	5.0 ±0.20	80	60	1	Built-in over current and thermal protection circuits
02			5.3 to 33			3.3 ±0.13	75			
03			15 to 33	0 to 0.4		12.0 ±0.60	88			
04			18 to 33			15.0 ±0.75	89			
06			12 to 33			9.0 ±0.45	86			

Switching Type IC Regulators

Type No.	Absolute Maximum Ratings		Recommended Operating Conditions			Electrical Characteristics (Ta = 25°C)			Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Storage Temperature Tstg (°C)	DC Input Voltage Range V_{IN} (V)	Output Current Range Io (A)	Operating Temperature Top (°C)	Output Voltage Vo (V)	Efficiency η (%) typ	Switching Frequency f (kHz) typ		
SI-8033S	35	–40 to +125	5.3 to 28	0 to 3.0	–30 to +125	3.3 ±0.13	79	60	2	Built-in over current and thermal protection Soft start circuits
-8050S	43		7 to 40			5.0 ±0.20	84			
-8090S			12 to 40			9.0 ±0.45	88			
-8120S			15 to 40			12.0 ±0.50	90			
-8150S			18 to 40			15.0 ±0.75	91			

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature (Tc) Top (°C)	Storage Temperature Tstg (°C)	DC Input Voltage Range V_{IN} (V)	Output Voltage Vo (V)	Efficiency η (%) typ	Switching Frequency f (kHz) typ		
STR2005	45	2.0	–20 to +100	–20 to +125	11 to 40	5.1 ±0.1	72	25	3	Variable output voltage
2012					18 to 45	12.0 ±0.2	85			
2013					19 to 45	13.0 ±0.2				
2015					21 to 45	15.0 ±0.2				
2024	50				30 to 50	24.0 ±0.3				
20005	45				8 to 40	5.1 ±0.1	72	30	4	

Switching Type/2-Pack Type IC Regulators

Combination Line-up		
Control Section (SI-8020 series)	Power Section (STR7000 and STR7100 series)	
	Io = 6A	Io = 12A
SI-8020 (Vo = 5.1V)	STR7001	STR7101
SI-8021 (Vo = 12V)	STR7002	STR7102
SI-8022 (Vo = 15V)	STR7002	STR7102
SI-8023 (Vo = 24V)	STR7003	STR7103

Type No.	Maximum Ratings of Power Section (Ta = 25°C)			Fig. No.
	Power Transistor Breakdown Voltage V_{4-1} (V)	Operating Temperature (Tc) Top (°C)	Storage Temperature Tstg (°C)	
STR7001	60	–30 to +125	–30 to +125	3
7002				
7003				
STR7101	60	–30 to +125	–30 to +125	3
7102				
7103				

Type No.	Maximum Ratings of Control Section (Ta = 25°C)			Fig. No.
	DC Input Voltage V_{IN} (V)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	
SI-8020	55	–20 to +85	–20 to +100	5
8021				
8022				
8023				

Combined Type No.	Total Characteristics (Ta = 25°C)					Remarks
	DC Input Voltage Range V_{IN} (V)	Output Voltage Vo (V)	Output Current Range Io (A)	Efficiency η (%) typ	Switching Frequency f (kHz) typ	
STR7001 –SI-8020	11 to 40	5.1 ±0.1	0 to 6.0	72	35	Built-in over current protection circuit output ON/OFF control Variable output voltage
STR7002 –SI-8021	18 to 50	12.0 ±0.2		84		
STR7002 –SI-8022	21 to 50	15.0 ±0.2		86		
STR7003 –SI-8023	30 to 50	24.0 ±0.3		90		
STR7101 –SI-8020	11 to 40	5.1 ±0.1	0 to	70		
STR7102 –SI-8021	18 to 50	12.0 ±0.2		82		
STR7102 –SI-8022	21 to 50	15.0 ±0.2		84		
STR7103 –SI-8023	30 to 50	24.0 ±0.3		87		

■Switching Type IC Regulators with Coil

Type No.	Absolute Maximum Ratings (Ta = 25°C)		Recommended Operating Conditions			Electrical Characteristics (Ta = 25°C)			Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Storage Temperature Tstg (°C)	DC Input Voltage Range V_{IN} (V)	Output Current Range Io (A)	Operating Temperature Top (°C)	Output Voltage Vo (V)	Efficiency η (%) typ	Switching Frequency f (kHz)		
SI-8201L	45	–25 to +85	10 to 40	0 to 0.4	–10 to +65	5.0 ±0.10	73	25min	6	
-8202L			11 to 40	0 to 0.35		6.0 ±0.10	74			
-8203L			16 to 40			12.0 ±0.20	79			
-8204L			10 to 40	0 to 0.4		5.2 ±0.10	73			
-8221L	40		8 to 35			5.0 ±0.15	80		7	
-8211L	60		15 to 55	0 to 0.3		5.0 ±0.10	63		8	
-8213L			22 to 55	0 to 0.28		12.0 ±0.20	78			
-8301L	45		8 to 40	0 to 1	–20 to +85	5.1 ±0.10	73	25typ	9	
-8303L			8.5 to 40			5.4 ±0.10				
-8811L	35		12 to 30	0.05 to 0.45	–10 to +70	5.0 ±0.25	72	50typ	10	2-output type Built-in over current protection circuit
				0 to –0.05		–5.0 ±0.25				
-8911L	60		24 to 55	0.02 to 0.3	–10 to +60	5.0 ±0.25	65	68typ		
				0 to –0.1		–5.0 ±0.25				
-8921L			24 to 55	0 to 0.6	–10 to +65	5.1 $^{+0.1}_{-0.15}$	72			Built-in over current protection circuit
-8922L			20 to 55							
-8401L	35		7 to 33	0 to 0.5	–20 to +85	5.0 ±0.20	80	60typ	7	Built-in over current and thermal protection circuits
-8402L			15 to 33	0 to 0.4		12.0 ±0.60	88			
-8403L			5.3 to 33	0 to 0.5		3.3 ±0.13	75			
-8405L			18 to 33	0 to 0.4		15.0 ±0.75	89			
-8406L			10 to 33			8.0 ±0.40	85			
-8501L			7 to 33	0 to 1		5.0 ±0.20	83		9	Built-in over current and thermal protection Soft start circuits
-8502L			15 to 33			12.0 ±0.60	89			
-8503L			5.3 to 33			3.3 ±0.13	79			
-8504L			12 to 33			9.0 ±0.45	87			
-8505L			18 to 33			15.0 ±0.75	90			

Dropper Type IC Regulators

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommended Input Voltage V_{IN} (V)	Output Voltage Vo (V) 3000F*	Output Voltage Vo (V) 3000FA	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3050F	25	1.0	–30 to +100	–40 to +125	6.0 to 15	5.0 ±0.20	5.0 ±0.10	1.0	2	Low power dissipation type Remote sensing possible Built-in over current, input over voltage and thermal protection circuits
-3090F	30				10.0 to 20	9.0 ±0.36	9.0 ±0.18			
-3120F					13.0 to 25	12.0 ±0.48	12.0 ±0.24			
-3150F	35				16.0 to 27	15.0 ±0.60	15.0 ±0.30			
-3157F					16.7 to 27	15.7 ±0.78	–			
-3025F	30				6.0 to 25	3 to 24 (Variable)				

* "A" may be marked on the right side of marking.

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommended Input Voltage V_{IN} (V)	Output Voltage Vo (V) 3000N*	Output Voltage Vo (V) 3000NA	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3050N	25	1.0	–30 to +100	–40 to +125	6 to 15	5.0 ±0.20	5.0 ±0.10	1.0	12	Low power dissipation type Built-in over current, input over voltage and thermal protection circuits
-3090N	30				10 to 20	9.0 ±0.36	9.0 ±0.18			
-3120N					13 to 25	12.0 ±0.48	12.0 ±0.24			
-3150N	35				16 to 27	15.0 ±0.60	15.0 ±0.30			

* "A" may be marked on the right side of marking.

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommended Input Voltage V_{IN} (V)	Output Voltage Vo (V) 3000C*	Output Voltage Vo (V) 3000CA	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3033C	20	1.5	–30 to +100	–40 to +125	4.5 to 15	3.3 ±0.132	3.3 ±0.066	1.0	2	Low power dissipation type Remote sensing possible Built-in over current, input over voltage and thermal protection circuits
-3050C	35				6.0 to 30	5.0 ±0.200	5.0 ±0.100			
-3090C					10.0 to 30	9.0 ±0.360	9.0 ±0.180			
-3120C					13.0 to 30	12.0 ±0.480	12.0 ±0.240			
-3150C					16.0 to 30	15.0 ±0.600	15.0 ±0.300			
-3240C	45				25.0 to 40	24.0 ±0.960	24.0 ±0.480			

* "A" may be marked on the right side of marking.

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommended Input Voltage V_{IN} (V)	Output Voltage Vo (V) 3001N*	Output Voltage Vo (V) 3001NA	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3051N	35	1.5	–30 to +100	–40 to +125	6 to 30	5.0 ±0.20	5.0 ±0.10	1.0	11	Low power dissipation type Built-in over current, input overvoltage and thermal protection circuits
-3091N					10 to 30	9.0 ±0.36	9.0 ±0.18			
-3121N					13 to 30	12.0 ±0.48	12.0 ±0.24			
-3151N					16 to 30	15.0 ±0.60	15.0 ±0.30			
-3241N	45				25 to 40	24.0 ±0.96	24.0 ±0.48			

* "A" may be marked on the right side of marking.

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)			Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommend Input Voltage V_{IN} (V)	Output Voltage Vo (V)	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3050J	25	2.0	–30 to +100	–40 to +125	6 to 15	5.0 ±0.10	1.0	2	Low power dissipation type Remote sensing possible Built-in over current, input over voltage and thermal protection circuits
-3090J	30				10 to 25	9.0 ±0.18			
-3120J	35				13 to 27	12.0 ±0.24			
-3150J					16 to 27	15.0 ±0.30			

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)			Fig. No.	Remarks
	Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommend Input Voltage V_{IN} (V)	Output Voltage Vo (V)	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3052N	25	2.0	–30 to +100	–40 to +125	6 to 15	5.0 ±0.10	1.0	11	Low power dissipation type Built-in over current, input over voltage and thermal protection circuits
-3092N	30				10 to 25	9.0 ±0.18			
-3122N	35				13 to 27	12.0 ±0.24			
-3152N					16 to 27	15.0			

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Recommended Input Voltage V_{IN} (V)	Output Voltage Vo (V)	Input-Output Differential Voltage V_{DIF} (V) max	Reset Detection Voltage Level Voth/Vo (%)		
SI-3050R	35	1.5	–30 to +100	–30 to +125	6 to 30	5.0 ± 0.2	1.0	90 to 94	2	Reset function Low power dissipation type Built-in over current, input over voltage and thermal protection circuits

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)		Fig. No.	Remarks
	DC Input Voltage V_{IN} (V)	Output Current Io (A)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	Output Voltage Vo (V)	Input-Output Differential Voltage V_{DIF} (V) max		
SI-3052V	25	2.0	–20 to +100 (T_C)	–30 to +125	5.0 ±0.1	1.0	12	Low power dissipation type Built-in over current protection circuits
-3122V	30				12.0 ±0.2			
-3152V					15.0 ±0.2			
SI-3052P	45	2.0	–20 to +80	–30 to +125	5.0 ±0.1	3.0	12	Built-in over current protection circuits
-3122P					12.0 ±0.2			
-3152P					15.0 ±0.2			
-3242P					24.0 ±0.2			
STR9005	25	4.0	–20 to +100 (T_C)	–30 to +125	5.0 ±0.1	1.0	3	Low power dissipation type Built-in over current protection circuits Output ON/OFF control and fine-adjustment of output votage possible
9012	30				12.0 ±0.2			
9015					15.0 ±0.2			

■3-Output IC Regulators

Type No.		Absolute Maximum Ratings (Ta = 25°C)					Electrical Characteristics (Ta = 25°C)					Fig. No.	Remarks
		DC Input Voltage V_{IN} (V)	Output Current Io (A)	Power Dissipation (All Output ON) P_D (W)	Operating Temperature Top (°C)	Storage Temperature Tstg (°C)	DC Input Voltage Range V_{IN} (V)	Output Voltage Vo (V)	Minimum Input-Output Differential Voltage V_{DIF} (V) max	Efficiency η (%) typ	Regulator Type		
SLA 3001M	Reg1	35	1.5	40	–30 to +85	–40 to +125	13 to 25	12.0 ±0.48	1.0	–	Dropper type	13	Low power dissipation type Remote sensing possible Built-in overcurrent, input overvoltage and thermal protection circuits
	Reg2						6 to 15	5.0 ±0.15					
	Reg3						10 to 20	9.0 ±0.36					
SLA 3002M	Reg1		0.5	37.5		–40 to +150	7 to 33	5.0 ±0.25	3.0	80	Switching type		Low power dissipation type Remote sensing possible (Reg 2 only) Built-in overcurrent and thermal protection circuits
	Reg2		1.0				17 to 30	15.7 ±0.78	1.0	–	Dropper type		
	Reg3		0.4				12 to 33	9.0 ±0.45	3.0	85	Switching type		
SLA 3004M	Reg1		0.5				7 to 33	5.0 ±0.25	3.0	80	Switching type		Built-in overcurrent and thermal protection circuits
	Reg2		0.4				12 to 33	9.0 ±0.45		85			
	Reg3							9.0 ±0.36					

1.2 Stepper Motor Driver ICs

■Unipolar Driver ICs

● SLA package product (Heat sink attachable type)

Type No.	Output Current Io (A)	Control Supply Voltage (= Motor Supply Voltage) (V)	Step sequence mode	Package	Fig. No.	Remarks
SLA7026M	3.0 max	46 max	1-2 phase excitation enabled	ZIP18pin	14	
SLA7024M	1.5 max					
SLA7027MU	1.0 max					
SLA7029M	1.5 max		2-phase excitation only	ZIP15pin	15	
SLA7022MU	1.0 max					
SLA7044M (PG001M)	3.0 max		Micro-step enabled	ZIP18pin (DIP16pin)	14 (16)	Driver + Pulse generator
SLA7042M (PG001M)	1.2 max				14 (16)	

● SMA package (Compact type)

Type No.	Output Current Io (A)	Control Supply Voltage (= Motor Supply Voltage) (V)	Step sequence mode	Package	Fig. No.	Remarks
SMA7029M	1.5 max	46 max	2-phase excitation only	ZIP15pin	17	
SMA7022MU	1.0 max					

● SDK package (Surface mount type)

Type No.	Output Current Io (A)	Control Supply Voltage (= Motor Supply Voltage) (V)	Step sequence mode	Package	Fig. No.	Remarks
SDK03M	1.0 max	46 max	1-2 phase excitation enabled	SMD16pin	18	1 motor driven by 2 packages

■Bipolar Driver ICs

Type No.	Output Current Io (A)	Supply Voltage Range (V)	Step sequence mode	Package	Fig. No.	Remarks
SI-7230M	±3.0 max	15 to 45	1-2 phase excitation enabled	SIP20pin	19	Open air package
SI-7502 (SLA5011) (SLA6503)	1.5max *Per 1 phase of motor coil	15 to 45	Pentagonal 4-phase excitation	ZIP27pin (Powder coating) (SIP12pin) (SIP12pin)	20 21	1 set of 3 products

1-3. Other ICs

■Voltage Doubler/Bridge Rectifier Automatic Switch ICs

Type No.	Absolute Maximum Ratings (Ta = 25°C)					Electrical Characteristics (Ta = 25°C)				Fig. No.	Remarks
	Repetitive Peak Off-state Voltage	RMS On-state Current	Surge On-state Current	Operating Temperature	Storage Temperature	Voltage Doubler Function Turn-on Voltage	Setting Switchover Voltage		OFF-state Current	ON-state Voltage		
	V_{DRM} (V)	I_T (RMS) (A)	I_{TSM} (A)	T_{OP} (°C)	Tstg (°C)	V_S (V)	V_{C1} (V)	V_{C2} ($V_{(AC)}$)*	I_{DRM} (μA)	V_{TH} (V)		
STR 80145A	500	5.0	50	–10 to +100 (T_C)	–30 to +125	AC80 max	196 ±5	145	100 max	1.8 max	22	
81145A		10.0	100									
81159A							215 ±5	159				
STR 82145	500	5.0	50	–20 to +100 (T_C)	–40 to +125	DC100 max	205 ±5	145	100 max	1.8 max	22	With latching capability
83145		10.0	100									
83159							225 ±5	159				

*Reference value

■Error Amplifier ICs (SE series)

Type No.	Absolute Maximum Ratings (Ta = 25°C)			Electrical Characteristics (Ta = 25°C)	Fig. No.	Remarks
	Collector-Ground Voltage V_{CGO} (V)	Collector Current I_C (mA)	Operating Temperature Top (°C)	Output Detection Voltage V_S (V)		
SE005N	12	20	–20 to +125 (T_C)	5.0 ±0.1	23	Low Vs
012N	50			12.0 ±0.2		
015N				15.0 ±0.2		
024N				24.0 ±0.2		
034N				34.0 ±0.3		
040N				40.0 ±0.4		
070N	150			70.2 ±0.8		High Vs
080N				80.2 ±0.8		
090N				90.0 ±0.8		
105N				105.2 ±0.8		
110N				110.2 ±0.8		
115N				115.2 ±0.8		
120N				120.2 ±0.8		
125N				125.2 ±0.8		
130N				130.2 ±0.8		
135N				135.2 ±0.8		
140N				141.2 ±0.8		

■Variable Voltage Detection Type Error Amplifier ICs

Type No.	Absolute Maximum Ratings (Ta = 25°C)			Electrical Characteristics (Ta = 25°C)	Fig. No.	Remarks
	Collector-Ground Voltage V_{CGO} (V)	Collector Current I_C (mA)	Operating Temperature Top (°C)	Output Detection Voltage V_S (V)		
SE-B3	150	20	–20 to +125 (T_C)	141.2 ±0.6 Condition (I_{IN} = 4mA, R_C = 9.1kΩ R_S = 88.7kΩ)	23	Variable voltage detection Gain adjustment possible

● External Dimensions (unit: mm)

Fig. 1

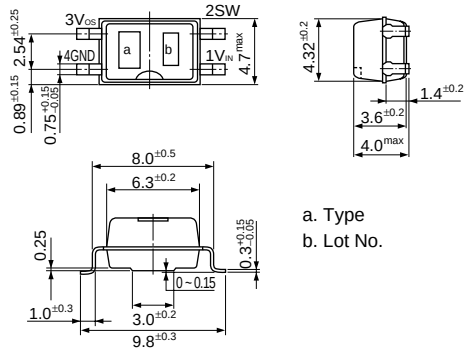
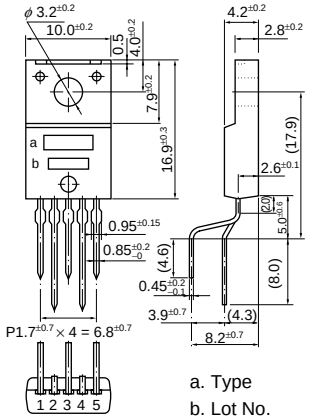


Fig. 2



Forming No. 1101

Fig. 3

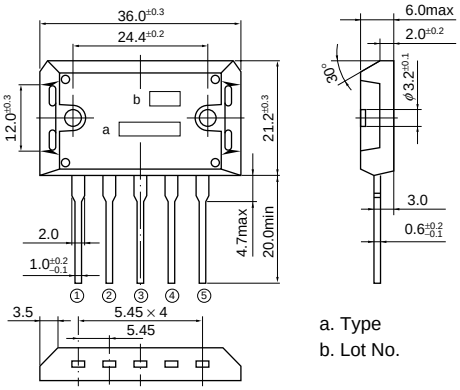


Fig. 4

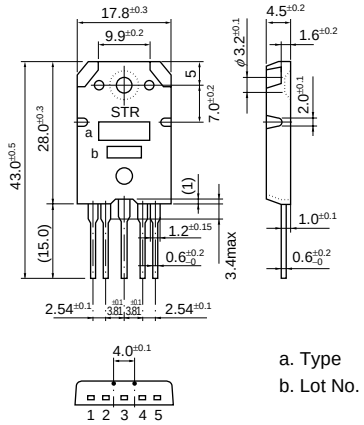


Fig. 5

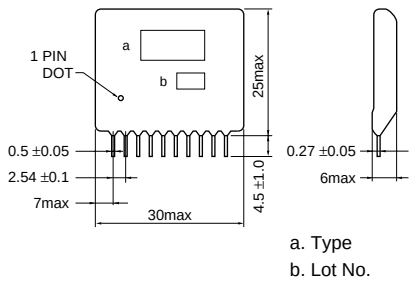


Fig. 6

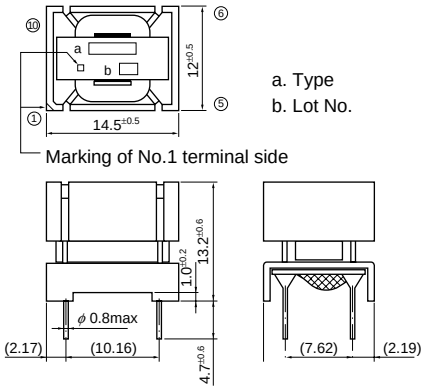


Fig. 7

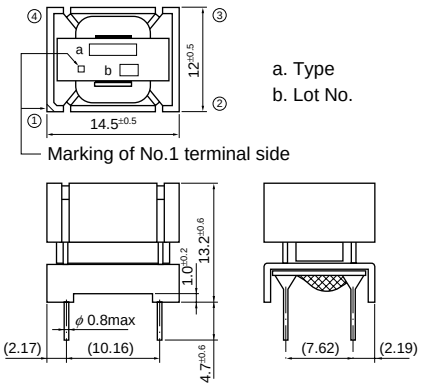


Fig. 8

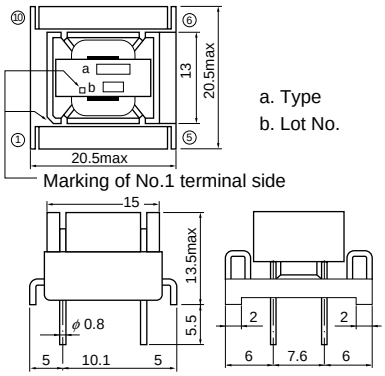


Fig. 9

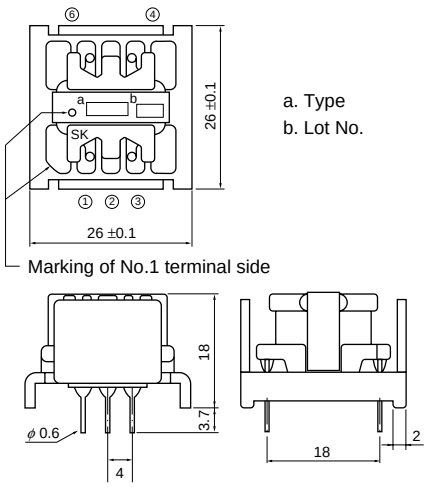


Fig. 10

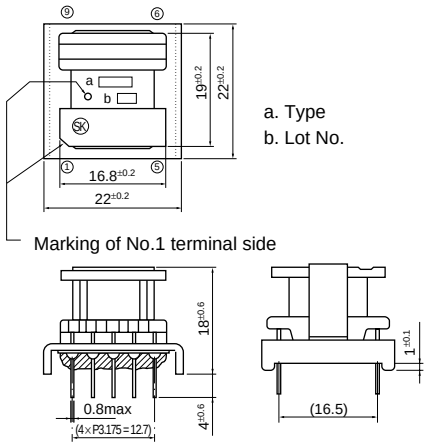


Fig. 11

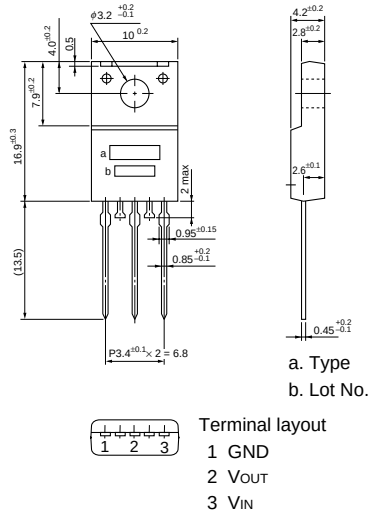


Fig. 12

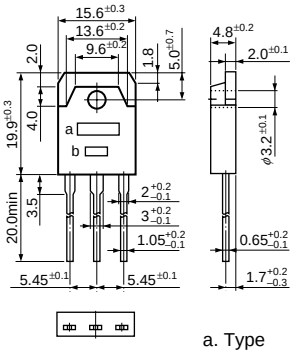


Fig. 13

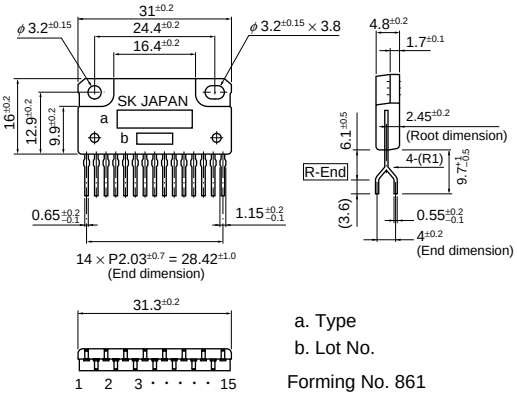


Fig. 14

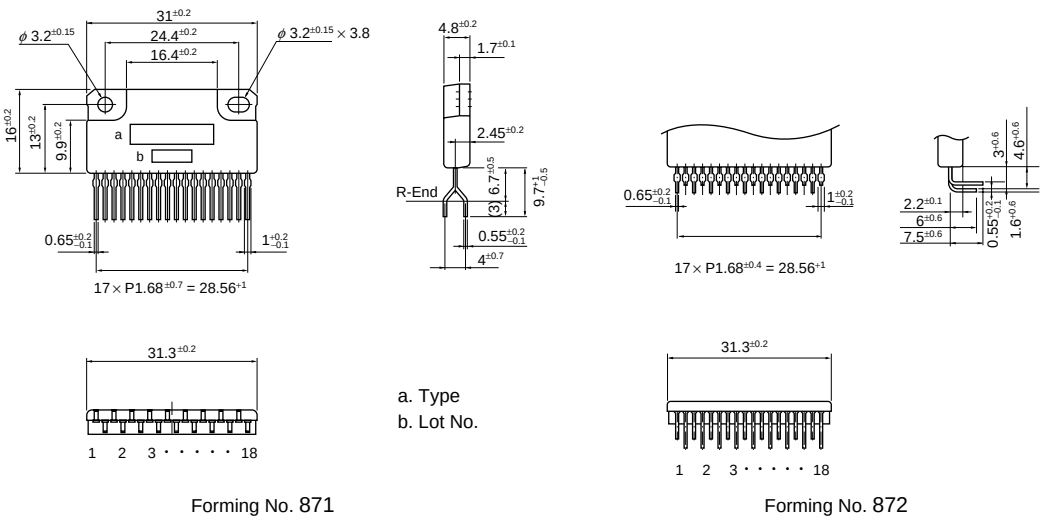
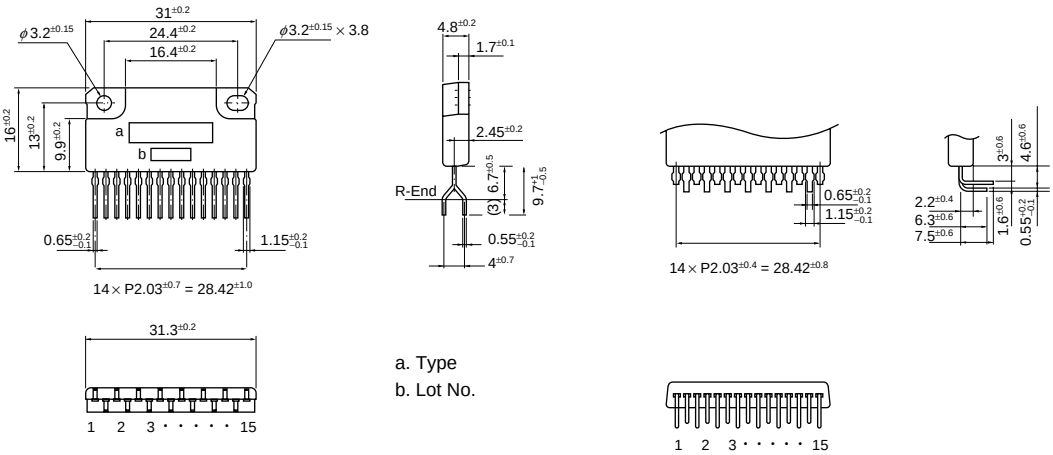


Fig. 15



Forming No. 853

Forming No. 855

Fig. 16

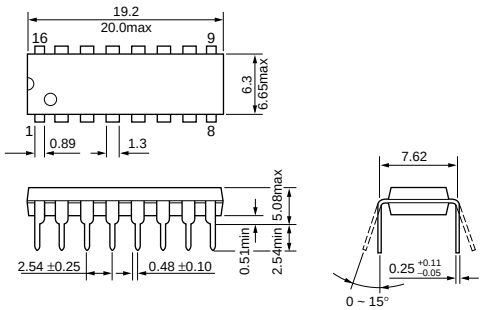
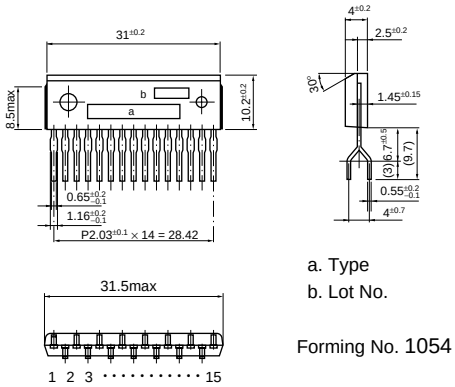


Fig. 17



Forming No. 1054

Fig. 18

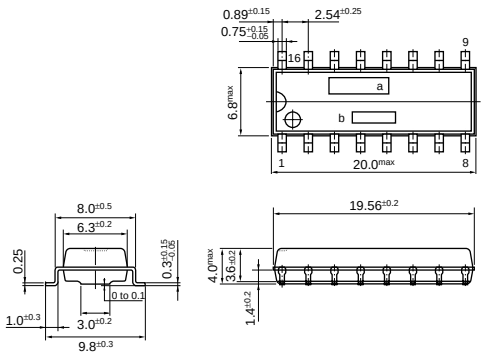


Fig. 19

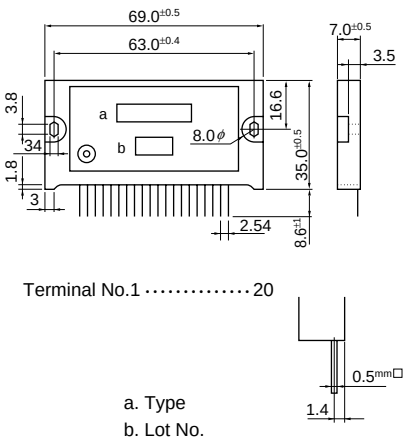
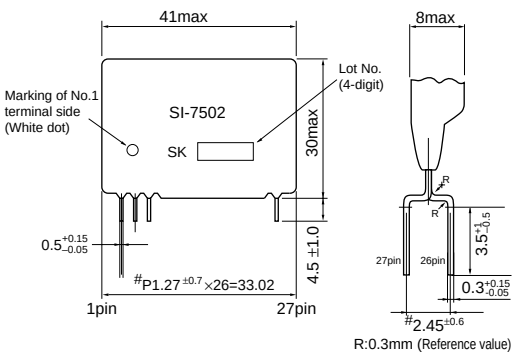
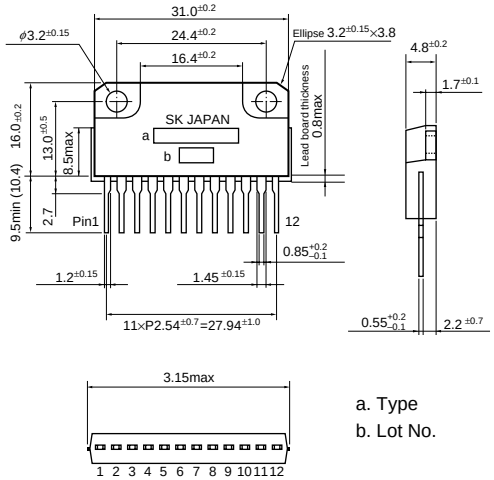


Fig. 20



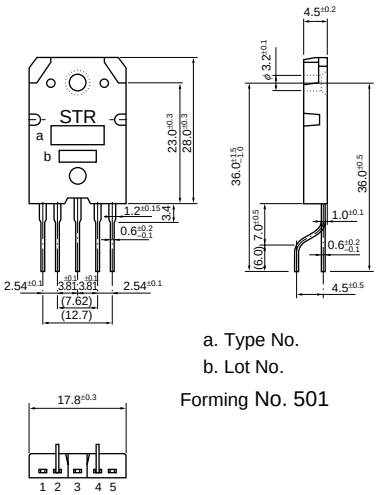
Note) Symbol # indicates the dimension of the lead end.

Fig. 21



a. Type
b. Lot No.

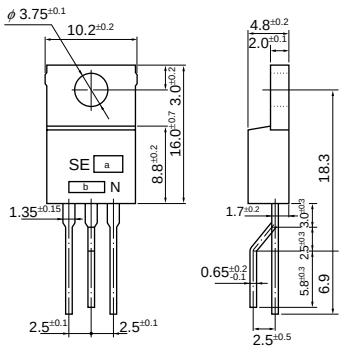
Fig. 22



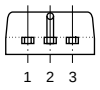
a. Type No.
b. Lot No.

Forming No. 501

Fig. 23 MT-25 (TO-220)



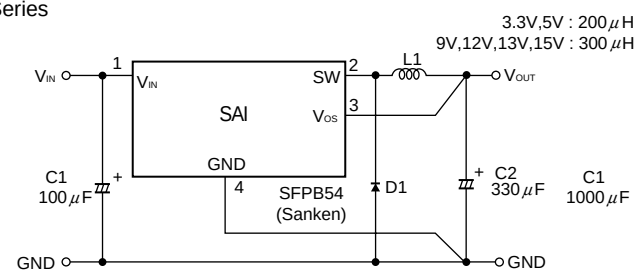
Forming No. 12



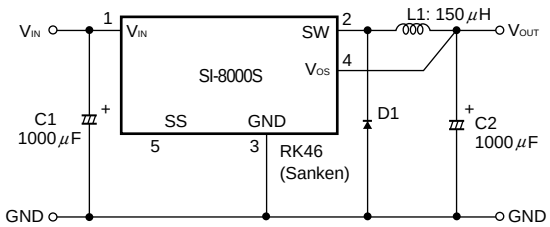
a. Type No.
b. Lot No.

● Standard Connection Diagrams

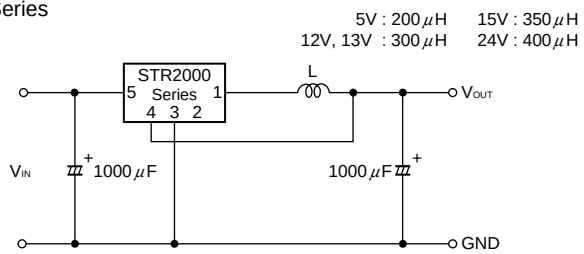
SAI Series



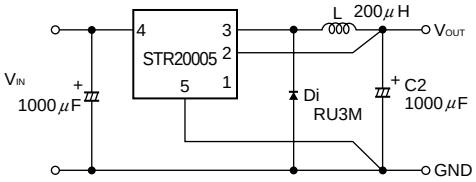
SI-8000S Series



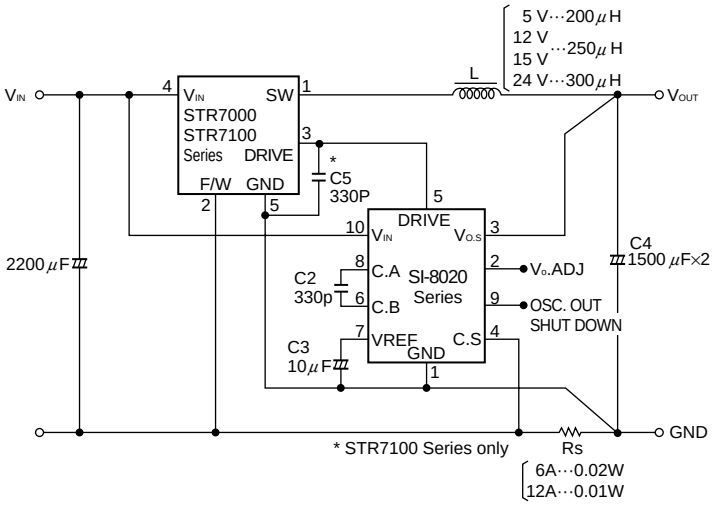
STR2000 Series



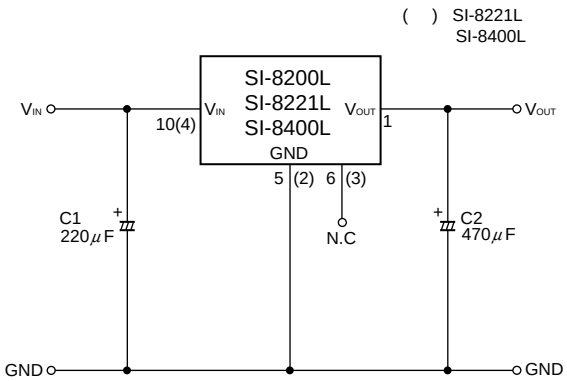
STR20005



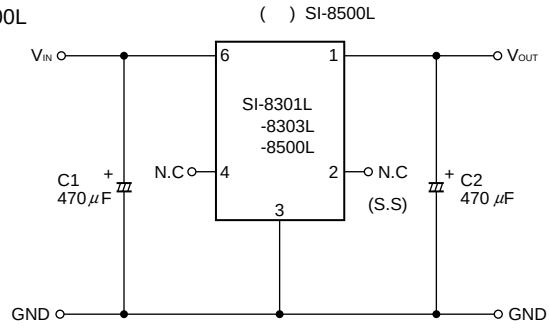
STR7000, 7100/SI-8020 Series



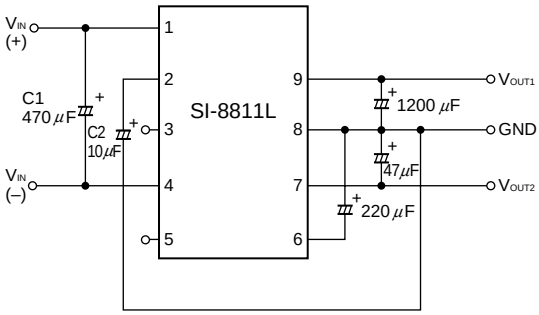
SI-8200L/8400L Series



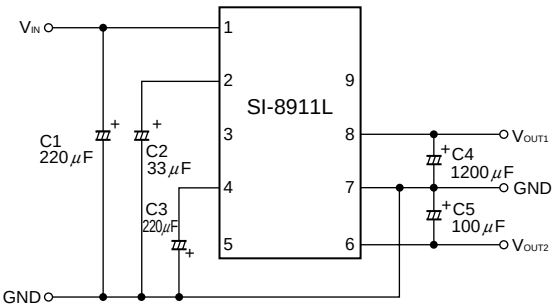
SI-8301L
-8303L
-8500L



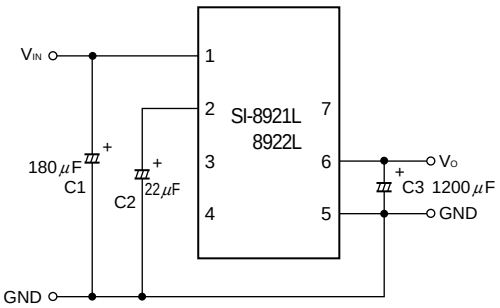
SI-8811L



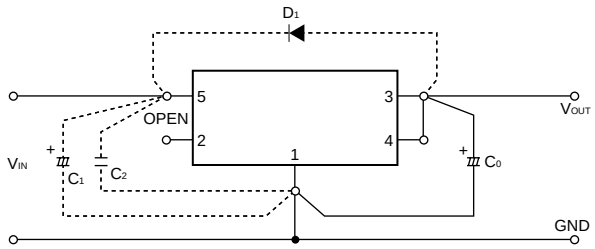
SI-8911L



SI-8921L
8922L

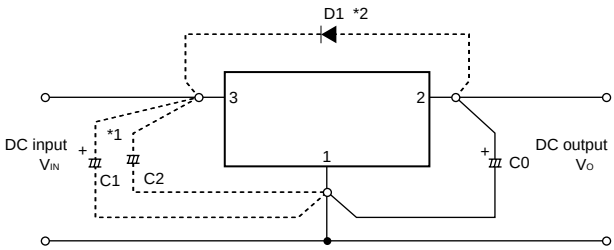


SI-3000F/3000C/3000J Series



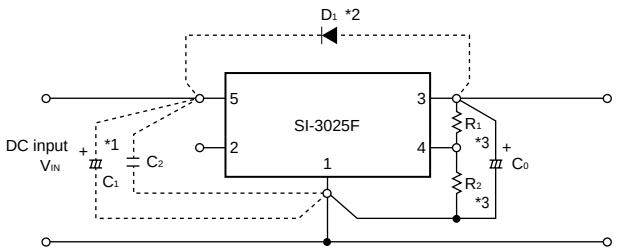
C0 : Output capacitor 47 to 100μF
*1 C1, C2 : Oscillation prevention capacitor (C1 : Approx. 47μF, C2 : Approx. 0.33μF)
*2 D1 : Diode for protection against the occurrence of a reverse bias condition between the input and the output.

SI-3000N/3001N/3002N Series



C0 : Output capacitor (47 to 100μF, 50V)
*1 C1, C2 : Oscillation prevention capacitor (C1 : Approx. 47μF, C2 : Approx. 0.33μF)
*2 D1 : Diode for protection against the occurrence of a reverse bias condition between the input and the output.

SI-3025F

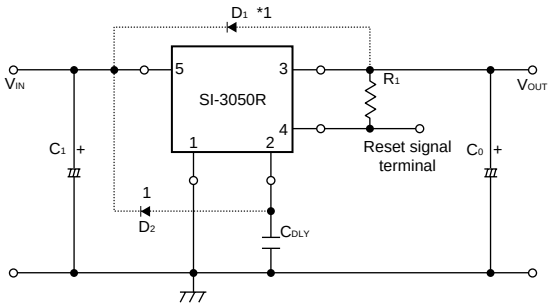


C0 : Output capacitor (47 to 100μF, 50V)
*1 C1, C2 : Oscillation prevention capacitor (C1 : Approx. 47μF, C2 : Approx. 0.33μF)
*2 D1 : Diode for protection against the occurrence of a reverse bias condition between the input and the output.
*3 R1, R2 : External resistor for output voltage setting
The equation (1) is applied to output voltage Vo and external resistor R1 & R2

$$V_O = V_{REF} \cdot (1 + \frac{R_1}{R_2}) \quad (1) \quad (V_{REF} = 2.55V \text{ (typ.)})$$

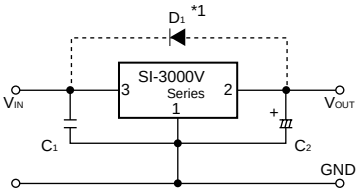
R2 should be 2.55 kΩ for stable operation.

SI-3050R



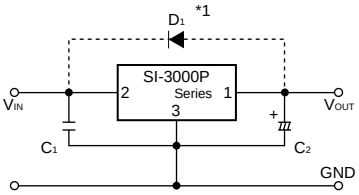
C0 : Output capacitor (Approx. 200μF, 50V)
C1 : Oscillation prevention capacitor (C1 : Approx. 47μF)
Wirings between 5 (VIN) and 1 (GND) terminals should be the shortest distance as much as possible. When the input line is inductive or if a long wire is used, add a capacitor with good high frequency characteristics and a capacitance of Approx. 0.33μF in parallel with the C1. Tantalum capacitors are recommended for C1 and C0 when operating in low temperature environments.
CDLY : Delay capacitor (reset output)
R1 : Pull-up resistor (more than 300Ω)
*1 D1, D2 : Diode for protection against the occurrence of a reverse bias condition between the input and the output.

SI-3000V



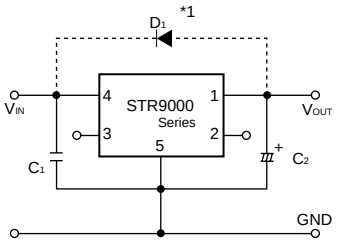
C_1: Oscillation prevention capacitor (0.33 μF)
C_2: Output capacitor (47 to 100 μF)
*1 D_1: Diode for protection against the occurrence of a reverse bias condition between the input and the output.

SI-3000P



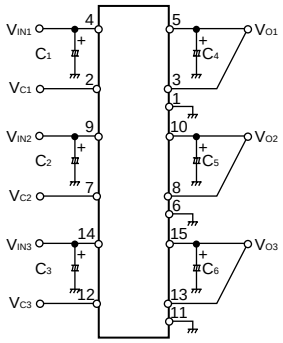
C_1: Oscillation prevention capacitor (0.33 μF)
C_2: Output capacitor (47 to 100 μF)
*1 D_1: Diode for protection against the occurrence of a reverse bias condition between the input and the output.

STR9000

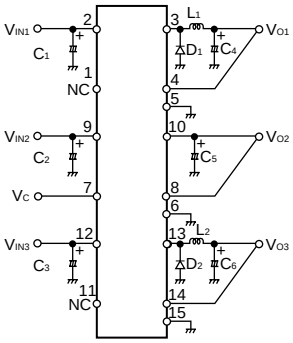


C_1: Oscillation prevention capacitor (0.33 μF)
C_2: Output capacitor (47 to 100 μF)
*1 D_1: Diode for protection against the occurrence of a reverse bias condition between the input and the output.

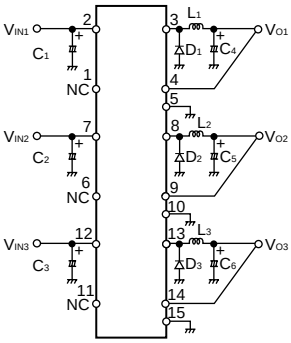
SLA3001M



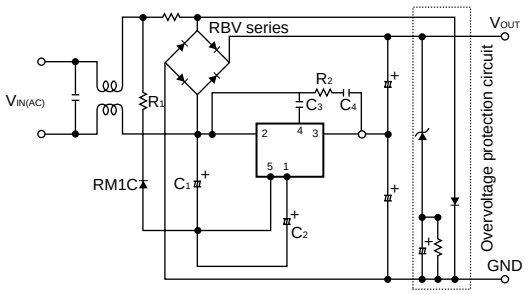
SLA3002M



SLA3004M

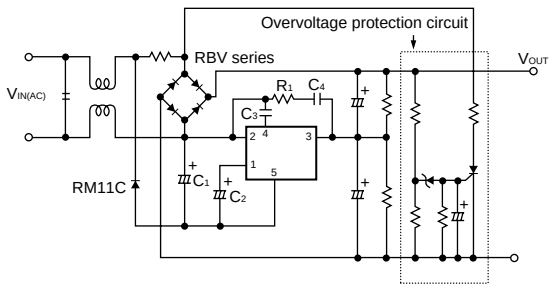


STR80000A Example of application circuit



R_1: 2.2Ω R_2: 4.7Ω
C_1: 2.2 μF/400V C_2: 100 μF/10V C_3: 0.1 μF
C_4: 0.047 μF

STR82000/83000 Example of application circuit



C_1: 4.7 μ/400V, C_2: 1 μF/50V, C_3: 0.047 μF/50V
C_4: 0.047 μF/250V, R_1: 4.7Ω

2 Power Transistors

2-1. Power Transistors

■Transistors for Audio Amplifier

●Single emitter

Type No.	P_C (W)	V_{CEO} (V)	I_C (A)	h_{FE} (min)	f_T (MHz)	Package
2SA1725/2SC4511	30	80	6	50	20	FM20 (T0220F)
2SA1726/2SC4512	50					MT-25 (T0220)
2SA1693/2SC4466	60					MT-100 (T03P)
2SA1907/2SC5099						FM100 (T03PF)
2SA1908/2SC5100	75	120	8			
2SA1694/2SC4467	80					MT-100 (T03P)
2SA1909/2SC5101		140	10			FM100 (T03PF)
2SA1673/2SC4388	85	180	15			
2SA1695/2SC4468	100	140	10			MT-100 (T03P)
2SA1492/2SC3856	130	180	15			
2SA1493/2SC3857	150	200				MT200 (2-screw mount)
2SA1494/2SC3858	200		17			

●LAPT (Multi-emitter for high-frequency transistor)

Type No.	P_C (W)	V_{CEO} (V)	I_C (A)	h_{FE} (min)	f_T (MHz)	Package
2SA1860/2SC4886	80	150	14	50	50	FM100 (T03PF)
2SA1186/2SC2837	100		10		60	MT-100 (T03P)
2SA1303/2SC3284	125		14		50	
2SA1386/2SC3519	130	160	15		40	
2SA1386A/2SC3519A		180				
2SA1294/2SC3263		230			35	
2SA1215/2SC2921	150	160			50	MT200 (2-screw mount)
2SA1216/2SC2922	200	180	17		40	
2SA1295/2SC3264		230			35	

●Darlington

Type No.	P_C (W)	V_{CEO} (V)	I_C (A)	h_{FE} (min)	f_T (MHz)	Package
2SB1626/2SD2495	30	110	6	5000	100/60	FM20 (T0220F)
2SB1659/2SD2589	50					MT-25 (T0220)
2SB1624/2SD2493	60					MT-100 (T03P)
2SB1625/2SD2494						FM100 (T03PF)
2SB1587/2SD2438	75	150	8		65/80	
2SB1559/2SD2389	80					MT-100 (T03P)
2SB1588/2SD2439			10		50/55	FM100 (T03PF)
2SB1649/2SD2562	85		15		45/70	
2SB1560/2SD2390	100	150	10		50/55	MT-100 (T03P)
2SB1647/2SD2560	130		15		45/70	
2SB1570/2SD2401	150		12		50/55	MT-200 (2-screw mount)
2SB1648/2SD2561	200		17		45/70	

●Temperature compensation/driver

Type No.	P_C (W)	V_{CEO} (V)	I_C (A)	h_{FE} (min)	f_T (MHz)	Package	Remarks
2SC4495	25	50	3	500	40	FM20 (T0220F)	Temperature compensation
2SA1859/2SC4883	20	150	2	60	60/120		Driver
2SA1859A/2SC4883A		180					

■Transistors for Switch Mode Power Supply

●For AC 80 to 130V input

Specifications			Package			
V_{CBO} (V)	V_{CEO} (V)	I_C (A)	MT-25 (T0220)	FM20 (T0220F)	MT-100 (T03P)	FM100 (T03PF)
250	200	5		2SC5271		
500	400	5		2SC4073		
				2SC4418		
				2SC4662		
		7	2SC3832	2SC3890		
				2SC4130		
		10			2SC4138	2SC4296
		12			2SC3833	2SC4297
					2SC5071	
		15			2SC4139	2SC4298
					2SC4434	
		18			2SC4140	
600	400	5		2SC5130		
		7		2SC4546		
	500	6	2SC3830	2SC4907		
		10			2SC3831	
	600	3		2SC5249		

●For AC 180 to 280V input

Specifications			Package			
V_{CBO} (V)	V_{CEO} (V)	I_C (A)	MT-25 (T0220)	FM20 (T0220F)	MT-100 (T03P)	FM100 (T03PF)
900 (1000)	550	3	2SC5239	2SC4517 (A)		
		5		2SC4518 (A)	2SC5287	
		10			2SC3927	2SC4557
	600	14			2SC4706	
900	800	3	2SC4020	2SC4908		
					2SC3678	2SC4299
				2SC4304		2SC4445
		5			2SC3679	2SC4300
		7			2SC3680	2SC4301

■Transistors for Humidifier

Type No.	P_C (W)	V_{CBO} (V)	V_{CEO} (V)	I_C (A)	h_{FE} (min)	f_T (MHz)	Package
2SC4153	30	200	120	7 (14)	70	30	FM20 (T0220F)
2SC3834	50						MT-25 (T0220)
2SC3835	70						MT-100 (T03P)

Note: Ic in parentheses is pulse current.

■Transistors for Display Horizontal Deflection Output

Type No.	V_{CBO} (V)	V_{CEO} (V)	I_C (A)	P_C (W)	Package	Remarks
2SC5002	1500	800	7 (14)	80	FM100 (T03PF)	
2SC5003						Built-in damper diode.
2SC5124			10 (20)	100		

Note: Ic in parentheses is pulse current.

Darlington Transistors

Type No.	V_{CBO} (V)	V_{CEO} (V)	I_C (A)	P_C (W)	Complementary	Package	Remarks
2SB1257	–60	–60	–4 (–6)	25	2SD2014	FM20 (T0220F)	
2SB1258	–100	–100	–6 (–10)	30	2SD1785		
2SB1259	–120	–120	–10 (–15)		2SD2081		
2SB1351	–60	–60	–12 (–20)				
2SB1352				60		FM100 (T03PF)	
2SB1382	–120	–120	–16 (–26)	75	2SD2082		
2SB1420				80		MT-100 (T03P)	
2SB1383			–25 (–40)	120	2SD2083		
2SD1796	60±10	60±10	4	25		FM20 (T0220F)	Surge voltage absorption
2SD2014	120	80			2SB1257		
2SD2015	150	120					
2SD2016	200	200	3				
2SD1785	120	120	6 (10)	30	2SB1258		
2SD2081			10 (15)		2SB1259		
2SD2017	300	250	6	35			
2SD2141	380±50	380±50	6 (10)				
2SD1769	120	120		50		MT-25 (T0220)	
2SD2045						FM100 (T03PF)	
2SD2557	200	200	5	70		MT-100(T03P)	
2SD2558						FM-100 (T03PF)	
2SD2082	120	120	16 (26)	75	2SB1382		
2SD2083			25 (40)	120	2SB1383	MT-100 (T03P)	

Note: Ic in parentheses is pulse current.

Low V_{CE} (sat) · High h_{FE} Transistors

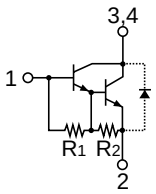
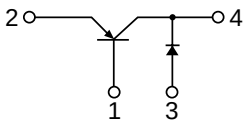
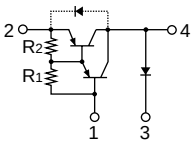
Type No.	V_{CE} (Sat) max (V)	h_{FE} min	V_{CEO} (V)	I_C (A)	P_C (W)	Complementary	Package	Remarks
2SA1567	–0.35	50	–50	–12	35	2SC4064	FM20 (T0220F)	
2SA1568			–60	±12		2SC4065		Built-in diode at C-E
2SA1746	–0.50		–50	–12 (–20)	60		FM100 (T03PF)	
2SC3852	0.50	500	60	3	25		FM20 (T0220F)	High h_{FE}
2SC3852A			80					High h_{FE}
2SC4495			50					High h_{FE}
2SC5370	0.30	70	40	12	30			
2SC4024	0.50	300	50	10	35			High h_{FE}
2SC4064	0.35	50		12		2SA1567		
2SC4065			60	±12		2SA1568		Built-in diode at C-E
2SC4131	0.50	60	50	10 (25)	60		FM100 (T03PF)	

Note: Ic in parentheses is pulse current.

General Purpose Transistors

Type No.	V_{CBO} (V)	V_{CEO} (V)	I_C (A)	P_C (W)	Complementary	Package
2SA1667	–150	–150	–2	25	2SC4381	FM20 (T0220F)
2SA1668	–200	–200			2SC4382	
2SA1488	–60	–60	–4		2SC3851	
2SA1488A	–80	–80			2SC3851A	
2SA1262	–60	–60		30	2SC3179	MT-25 (T0220)
2SC4381	150	150	2	25	2SA1667	FM20 (T0220F)
2SC4382	200	200			2SA1668	
2SC3851	80	60	4		2SA1488	
2SC3851A	100	80			2SA1488A	
2SC3179	80	60		30	2SA1262	MT-25 (T0220)
2SC5333	300	300	2	35		FM20 (T0220F)
2SC2023				40		MT-25 (T0220)

Surface Mount Transistors (SA Series)

Type No.	Equivalent Circuit	Breakdown voltage (V)	Current (A)	h_{FE} and others	V_{CE} (sat) and others (V)	Functions/Applications	Fig. No.
SAC02	 R_1 : 4kΩ typ R_2 : 200Ω typ	100	1.2 (2.0A pulse)	2000 ~ 12000	1.3max	NPN darlington transistor o Pulse motors o Solenoids o Relays	6
SAH02		Tr: –30 Di: 30	–2.0 (–3.0A pulse) 1.5	1000min trr 15ns typ	–0.3max V_F 0.55max	PNP transistor with built-in schottky barrier diode o Power component for chopper regulator o 5V output component for portable equipment - Video cameras - Word processor - CD radio cassettes - Personal computers	
SAH03	 R_1 : 4kΩ typ R_2 : 100Ω typ	–60	–1.2	2000 ~ 12000	–1.4max	PNP darlington transistor with built-in fast-recovery diode o Power switching in constant voltage stepper motors - Printers - Plain paper copiers	

Pulse Ratings: t ≤ 1ms, duty ≤ 10%

2-2. Transistor Arrays

■Sink Drive

●With Built-in avalanche diode at Collector-base

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
STA481A	60 ±10	1	2000	①	STA10Pin
STA471A		2			
STA401A		4	1000		
STA406A		6	2000		
STA435A	65 ±15	4	1000	②	
STA301A	60 ±10	4		③	STA8Pin
STA485A	100 ±15	1	2000	①	STA10Pin
STA475A		2			
STA407A		4			
STA413A	35 ±5	3	500	④	
STA460C	60 ±10	6	700	⑤	
SLA4010		4	2000	⑥	SLA12Pin

●With built-in flywheel diode

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
SMA4033	100	2	2000	⑦	SMA12Pin
SMA4032		3			
SLA4031	120	4			SLA12Pin
SLA4061		5			
SLA4041	200	3	1000		

●General purpose

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
STA312A	60	3	300	⑧	STA8Pin
STA303A	100	4	1000	⑨	
STA412A	60	3	300	⑩	STA10Pin
STA473A	100	2	2000	⑪	
STA403A		4	1000		
STA404A	200	3			
SMA4030	100		2000	⑫	SMA12Pin
SLA4030		4			SLA12Pin
SLA4060	120	5			

■Source Drive

●With built-in flywheel diode

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
SMA4021	–60	–3	2000	⑬	SMA12Pin
SLA4071	–100	–5			SLA12Pin

●General purpose

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
STA302A	–60	–4	1000	⑭	STA8Pin
STA322A	–50		100	⑮	
STA421A	–60		40	⑯	STA10Pin
STA472A		–2	2000	⑰	
STA402A		–4	1000		
STA408A	–100	–4	2000	⑱	STA10Pin
SMA4020	–60			⑲	SMA12Pin
SLA4070	–100	–5			SLA12Pin

■H-Bridge

Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
STA431A	±60	±3	40	⑳	STA10Pin
STA458C	±30	±5		㉑	
STA434A	±60	±4	1000	㉒	
STA457C			2000	㉓	
SLA4310			80	㉔	SLA12Pin
SLA4313	±35	±5	50	㉕	
SLA4340	±60	±4	2000	㉖	
SLA4390	±100	±5			
SLA4391			1000	㉗	
SLA8001	±60	±12	50	㉑	

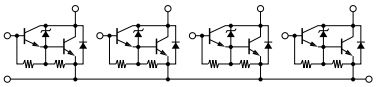
■3-Phase Motor Driver

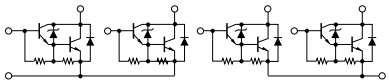
Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
STA302A	–60	–4	1000	⑭	STA8Pin
STA303A	100	4		⑨	
STA304A	550	1	200	㉘	
STA305A	–550	–1		㉙	
SMA6010	±60	±4	2000	㉚	SMA12Pin
SMA6014		±2	1500/2000	㉜	
SLA6020	±100	±5	2000	㉚	SLA12Pin
SLA6030	±35	±4	70	㉛	
SLA6012	±60				
SLA6022	±80	±5	2000	㉜	
SLA6023	±60	±6			
SLA5022			MOS/2000	㉝	

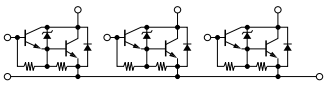
■Stepper Motor Dual Power Supply Driver

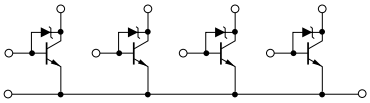
Type No.	Ratings			Equiva-lent Circuit	Package
	V_{CEO} (V)	I_C (A)	h_{FE} (min)		
SMA6511	60 ±10	1.5	2000	㉞	SMA12Pin
SMA6512	100 ±15				

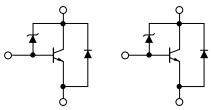
● Equivalent Circuit

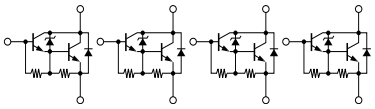
① 

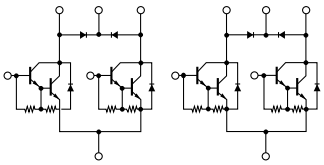
② 

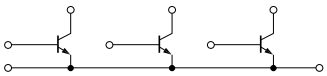
③ 

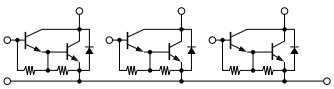
④ 

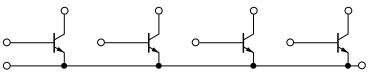
⑤ 

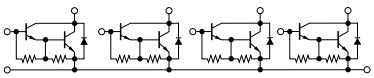
⑥ 

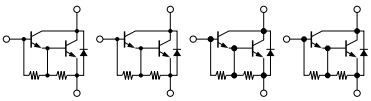
⑦ 

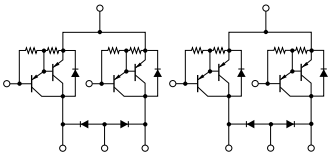
⑧ 

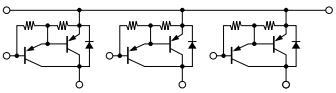
⑨ 

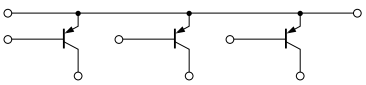
⑩ 

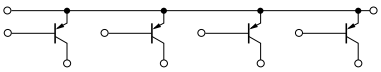
⑪ 

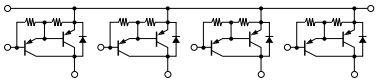
⑫ 

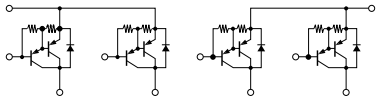
⑬ 

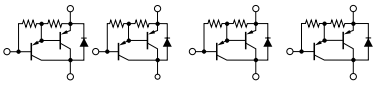
⑭ 

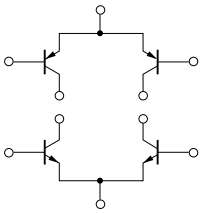
⑮ 

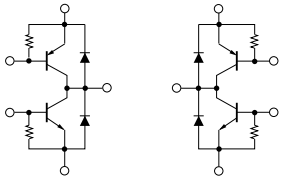
⑯ 

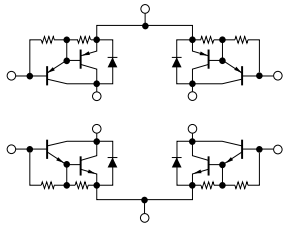
⑰ 

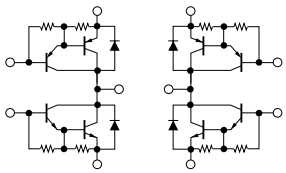
⑱ 

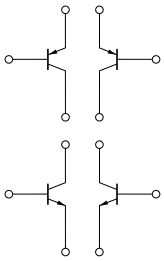
⑲ 

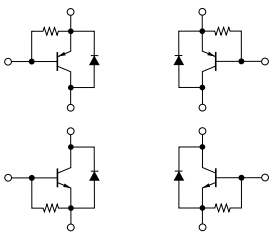
⑳ 

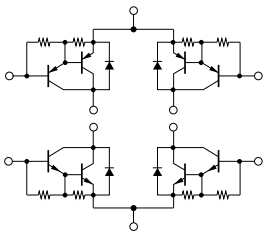
㉑ 

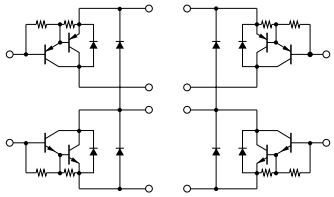
㉒ 

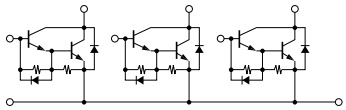
㉓ 

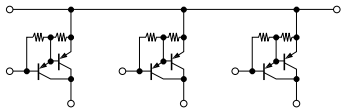
㉔ 

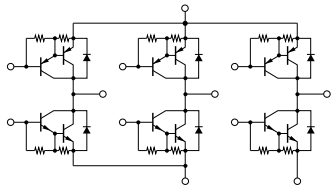
㉕ 

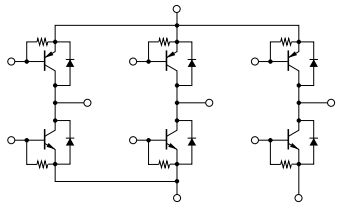
㉖ 

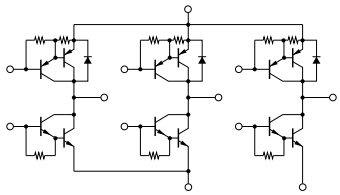
㉗ 

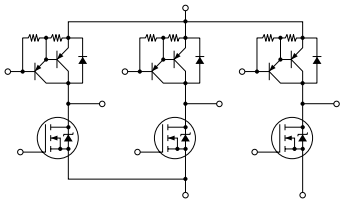
㉘ 

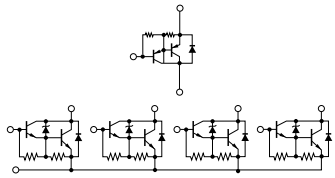
㉙ 

㉚ 

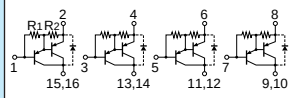
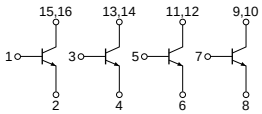
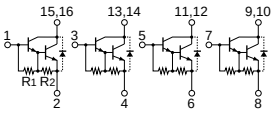
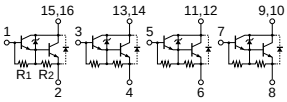
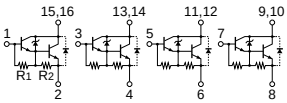
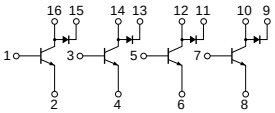
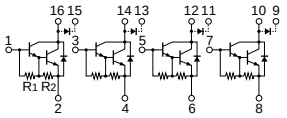
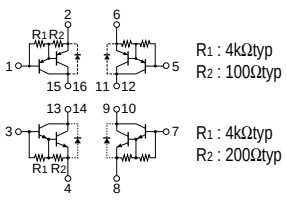
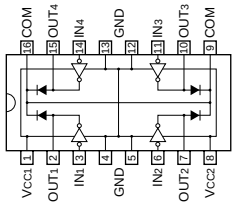
㉛ 

㉜ 

㉝ 

㉞ 

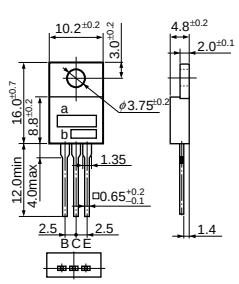
Surface Mount Transistor Arrays (SD Series)

Type No.	Equivalent Circuit	Breakdown Voltage (V)	Current (A)	h_{FE} and other	$V_{CE\ (sat)}$ and other (V)	Functions/Applications	Fig. No.
SDA01	 R1 : 4kΩtyp R2 : 100Ωtyp	–60	–1.5 (–2.5A pulse)	2000 to 12000	–1.4 max	PNP darlington transistor array (Surface mount type of STA472A) o Pulse motors o Relays o Solenoids	
SDC01		50	2.0 (3.0A pulse)	500 to 2000	0.4 max	NPN high h_{FE} transistor array (Surface mount type of STA412A) o Solenoids o Relays o Lamps o Switches	
SDC02	 R1 : 4kΩtyp R2 : 200Ωtyp	100	1.5 (2.5A pulse)	2000 to 12000	1.3 max	NPN darlington transistor array (Surface mount type of STA473A) o Pulse motors o Solenoids o Relays	
SDC03	 R1 : 3.5kΩtyp R2 : 200Ωtyp	60 ±10	1.5 (2.5A pulse)	2000 to 12000	1.4 max	NPN darlington transistor array with built-in surge absorption feature (Surface mount type of STA471A) o Pulse motors o Solenoids o Relays	
SDC04	 R1 : 4kΩtyp R2 : 150Ωtyp	100 ±15	1.5 (2.5A pulse)	2000 to 12000	1.3 max	NPN darlington transistor array with built-in surge absorption feature (Surface mount type of STA475A) o Pulse motors o Solenoids o Relays	11
SDH01		Tr: 50 Di: 120	2.0 (3.0A pulse) 1.5	500 to 2000 t_{rr} 100ns typ	0.4 max V_F 1.6 max	NPN high h_{FE} transistor array o Pulse motors o Solenoids o Relays o Lamps o Switches	
SDH02	 R1 : 2.5kΩtyp R2 : 200Ωtyp	Tr: 100 Di: 120	–1.5 (–2.5A pulse) 1.5	2000 to 12000 t_{rr} 100ns typ	1.3 max V_F 1.6 max	NPN darlington transistor array o Pulse motors o Solenoids o Relays	
SDH03	 R1 : 4kΩtyp R2 : 100Ωtyp R1 : 4kΩtyp R2 : 200Ωtyp	PNP: –60 NPN: 100	–1.5 (–2.5A pulse) 1.5 (2.5A pulse)	2000 to 12000 2000 to 12000	–1.4 max 1.3 max	H-bridge transistor array (Surface mount type of STA434A) o DC motors o Pulse motors	
SDI01		80	1.2	Active Low V_{IL} < 1.4V	1.6 max	Four circuit array with buffers (Surface mount type of SIB1044D) o Pulse motors o Solenoids o Relays	

Pulse Ratings: t ≤ 1ms, duty ≤ 10%

● External Dimensions (Unit: mm) a. Type No. b. Lot No.

Fig. 1 MT-25 (TO-220)



a. Type No.
b. Lot No.

Fig. 2 MT-100 (TO-3P)

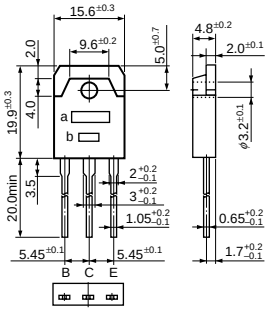


Fig. 3 MT-200

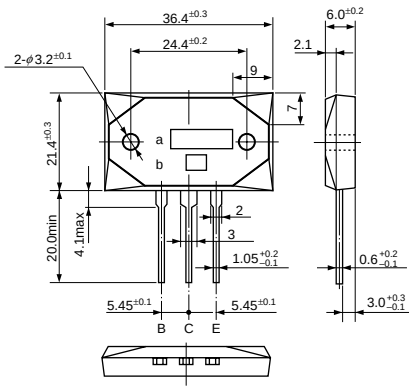


Fig. 4 Full-Mold FM20 (T0-220F)

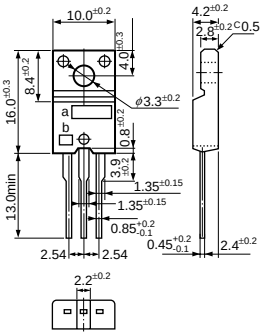


Fig. 5 Full-Mold FM100 (T0-3PF)

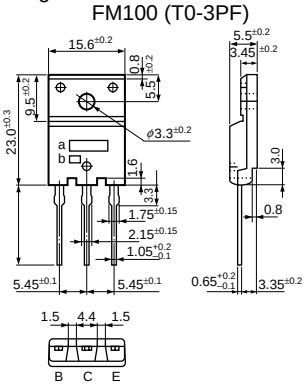


Fig. 6 SA series

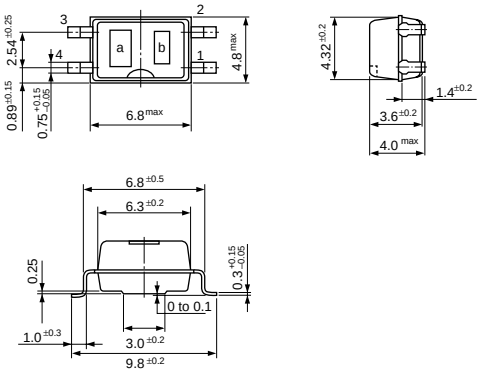


Fig. 7 STA300A series

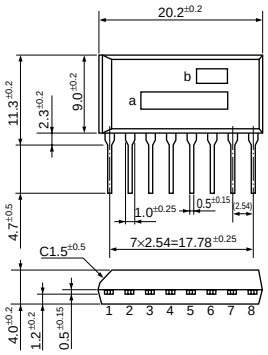


Fig. 8 STA400A series

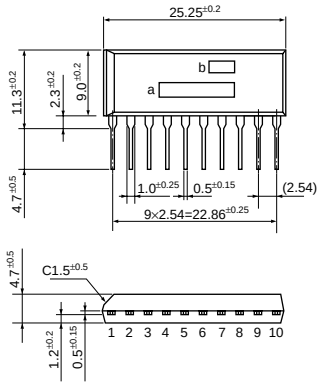


Fig. 9 SMA series

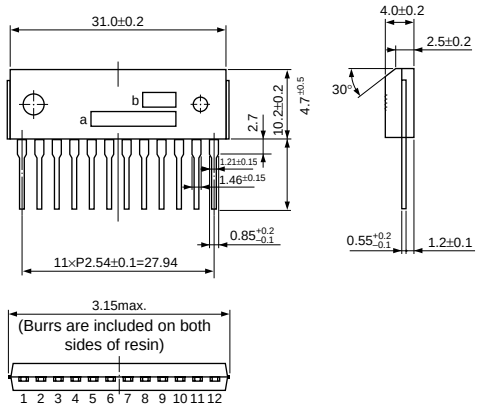


Fig. 10 SLA series

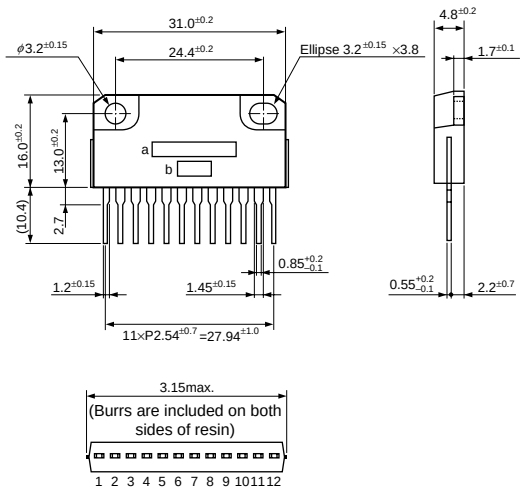
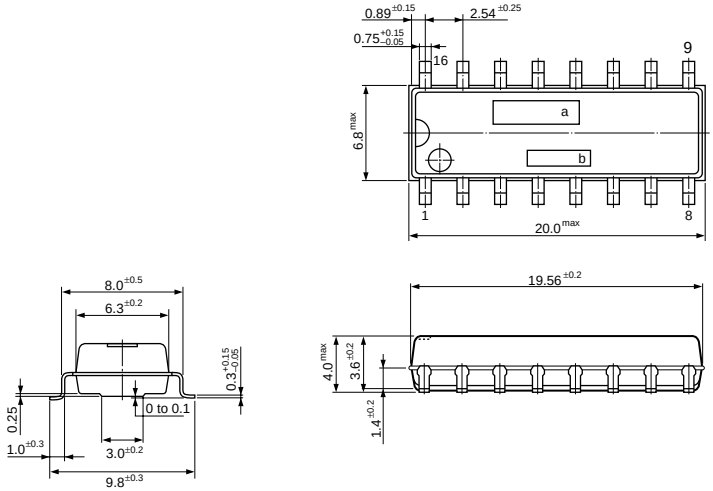


Fig. 11 SD series



3 Power MOSFETs

3-1. MOSFETs

Nch

Parameter / Type No.	Absolute Maximum Ratings				Electrical Characteristics (Ta = 25°C)		Package	Remarks
	V_{DSS}	I_D	P_D (Tc = 25°C)	E_{AS}	$R_{DS(ON)}$ max (V_{GS} = 10V)	Ciss (typ)		
	(V)	(A)	(W)	(mJ)	(Ω)	(pF)		
2SK1188	60	10.0	25	2.1	0.200	300	FM20	
2SK1189		15.0	30	6.2	0.100	640		
* 2SK2419		22.0	35	17.0	0.037	1300		
2SK1190					0.050			
2SK2420		30.0	40	38.0	0.028	2200		
2SK1191						2500		
2SK2421		40.0		60.0	0.020	2400		
2SK1192			90	38.0	0.028	2500	FM100	
2SK1712		15.0	30	6.2	0.100	820	FM20	Logic driven
2SK1185	100	5.0	25	16.0	0.540	180		
2SK1186		9.0	30	32.0	0.270	350		
2SK1187		12.0	35	58.0	0.160	650		
2SK2778			30	70.0	0.175	740		Logic driven
2SK2779		20.0	35	200.0	0.080	1630		
2SK1183	200	3.0	25	36.0	1.500	140		
2SK1184		5.0	30	67.0	0.800	260		
2SK2803	450	3.0		30.0	2.800	340		
2SK2804		5.0	35	90.0	1.500	580		
2SK2701		7.0		130.0	1.100	720		
2SK2702		10.0		300.0	0.800	1000		
2SK2703			75				FM100	
2SK2704		13.0	40	400.0	0.570	1300	FM20	
2SK2705			75				FM100	
2SK2805		15.0	80	550.0	0.380	2100		
2SK2706		18.0	85	700.0	0.300	2500		
2SK1177	500	2.5	30	200.0	3.000	350	FM20	UL approved type available
2SK1178		4.0	35	260.0	1.500	610		
2SK1179		8.5	85	400.0	0.850	1300	FM100	
2SK1180		10.0		500.0	0.600	1800		
2SK1181		13.0		660.0	0.400	2700		
2SK2848	600	2.0	30	10.0	3.800	290	FM20	
2SK2707		4.5	35	50.0	1.850	560		
2SK2708		7.0	40	150.0	1.100	950		
2SK2709		8.5	85	300.0	0.850	1200	FM100	
2SK2710		12.0		400.0	0.550	1900		
2SK2207	900	3.0	35	280.0	5.000	630	FM20	
2SK2208		5.0	75	400.0	3.000	1000	FM100	

Pch

Parameter / Type No.	Absolute Maximum Ratings				Electrical Characteristics (Ta = 25°C)		Package	Remarks
	V_{DSS}	I_D	P_D (Tc = 25°C)	E_{AS}	$R_{DS(ON)}$ max (V_{GS} = 10V)	Ciss (typ)		
	(V)	(A)	(W)	(mJ)	(Ω)	(pF)		
*2SJ424	–60	–5.0	25	–	0.50	270	FM20	
2SJ425		–8.0	30	–	0.28	580		

* Under development

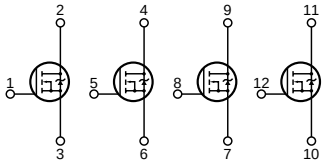
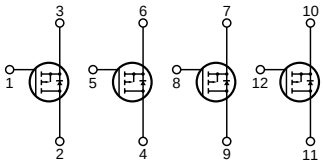
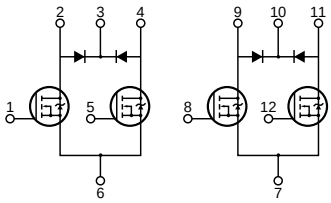
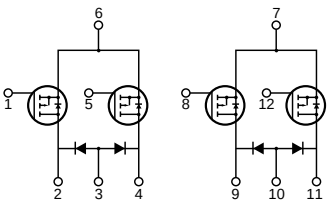
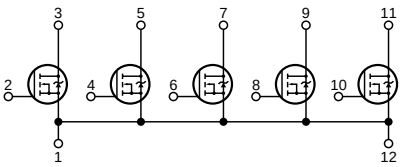
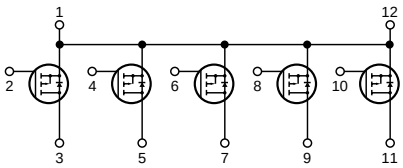
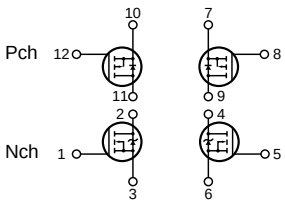
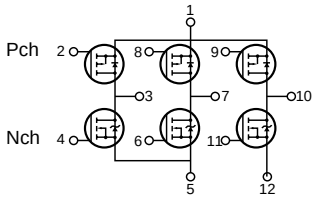
3-2. MOSFET Arrays

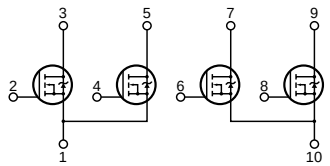
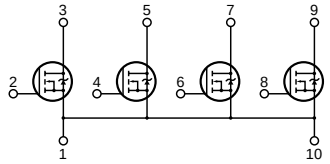
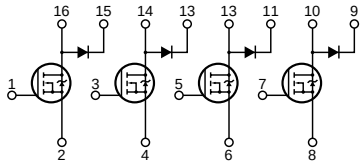
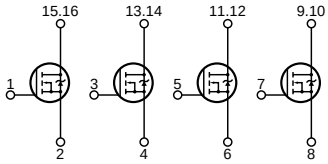
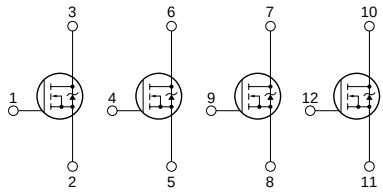
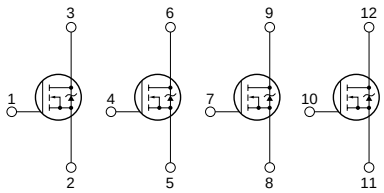
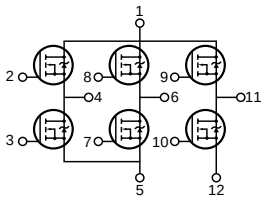
Parameter / Type No.		Absolute Maximum Ratings				Electrical Characteristics (Ta = 25°C)		Equivalent circuit No.	Package
		V_{DSS}	I_D	P_D (Tc = 25°C)	E_{AS}	$R_{DS\ (ON)}$ max (V_{GS} = 10V)	Ciss (typ)		
		(V)	(A)	(W)	(mJ)	(Ω)	(pF)		
SLA5001	N-Channel	100	5	35	30	0.300	350	A	SLA
SLA5002								B	
SLA5003		200			60	0.900	260		
SLA5004	P-Channel	–60			–	0.300	570	A	
SLA5005		–100			–	0.700	300		
SLA5006					–			B	
SLA5007	N-Channel	60			2	0.220		D	
	P-Channel	–60	4		–	0.550	270		
SLA5008	N-Channel	100			16	0.600	180	D	
	P-Channel	–100	3		–	1.300			
SLA5009	N-Channel	60	5		2	0.220	300	E	
	P-Channel	–60	4		–	0.550	270		
SLA5010	N-Channel	100			16	0.600	180	E	
	P-Channel	–100	3		–	1.300			
SLA5011	N-Channel	60	5		2	0.220	300	C	
SLA5012	P-Channel	–60			–	0.300	570		
SLA5013	N-Channel	100			30		350	D	
	P-Channel	–100			–	0.700	300		
SLA5015	P-Channel	–60	4		–	0.550	270	C	
SLA5017	N-Channel	60	5		2	0.300	400	E	
	P-Channel	–60	4		–	0.550	270		
SLA5018	N-Channel	60	5		2	0.300	400	D	
	P-Channel	–60	4		–	0.550	270		
SLA5021	N-Channel	100	5		60	0.190	880	C	
SLA5024	P-Channel	–60	4		–	0.550	270	A	
SLA5029	N-Channel	60			1	0.450	120	C	
SLA5031			5		2	0.300	400	B	
SLA5037		100	10	40	200	0.080	1630	J	
SLA5038		150	7	35	100	0.200	930	C	
SLA5040		100	4		16	0.600	180	B	
SLA5041		200	10	40	120	0.175	850	J	
SLA5042		100	5	35	70	0.185	740	C	
SLA5044		250	10	40	120	0.250	850	J	
SLA5047		150			280	0.085	2000	K	
SMA5101		100	4	28	16	0.600	180	A	SMA
SMA5102								B	
SMA5103	N-Channel	60	5		2	0.220	300	D	
	P-Channel	–60	4		–	0.550	270		
SMA5104	N-Channel	60	5		2	0.220	300	E	
	P-Channel	–60	4		–	0.550	270		
SMA5105	N-Channel	100	5		32	0.410	470	B	
SMA5106			4		16	0.780	230		
SMA5112		250	7		55	0.520	450	L	
STA501A	N-Channel	60	5	20	–	0.200	400	F	STA
*STA504A			4		–	0.450	120	G	
*STA505A		100	3		–	0.500	240	F	
STA506A			2		–	0.800	150		
SDK02		60		* 3	–	0.240	400	H	SDK
SDK04		100			–	0.800	160	I	

* Under development

* Ta = 25°C

MOSFET Array Equivalent circuit and Selection Chart

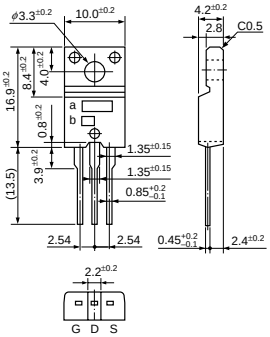
Equivalent circuit \ V_{DSS} (V)			60	100	150	200	250	Application
A	Nch			SLA5001 (5A) SMA5101 (4A)				Stepper motor and solenoid driving
	Pch		SLA5024 (4A) SLA5004 (5A)	SLA5005 (5A)				
B	Nch		SLA5031 (5A)	SLA5040 (4A) SMA5102 (4A) SMA5106 (4A) SLA5002 (5A) SMA5105 (5A)		SLA5003 (5A)		
	Pch			SLA5006 (5A)				
C	Nch		SLA5029 (4A) SLA5011 (5A)	*SLA5021 (5A) *SLA5042 (5A)	*SLA5038 (7A)			5-phase motor driving * "S" Shape Correction Circuit Switch for CRT Display
	Pch		SLA5015 (4A) SLA5012 (5A)					
D	Pch / Nch		SLA5007 SLA5018 SMA5103 (Nch5A Pch4A)	SLA5008 (Nch4A Pch3A) SLA5013 (Nch5A Pch5A)				Stepper motor and DC motor driving
E	Pch / Nch		SLA5009 SLA5017 SMA5104 (Nch5A Pch4A)	SLA5010 (Nch4A Pch3A)				DC motor driving

Equivalent circuit / V_{DSS} (V)			60	100	150	200	250	Application
F	Nch		STA501A (5A)	STA505A (3A) STA506A (2A)				Stepper motor and solenoid driving
G	Nch		STA504A (4A)					
H	Nch		SDK02 (2A)					
I	Nch			SDK04 (2A)				
J	Nch			SLA5037 (10A)		SLA5041 (10A)	SLA5044 (10A)	"S" Shape Correction Circuit Switch for CRT Display
K	Nch				SLA5047 (10A)			
L	Nch						SMA5112 (7A)	3-Phase high voltage DC motor driving

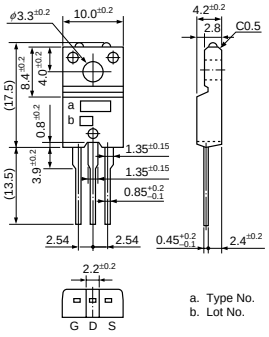
● External Dimensions (unit: mm)

❶ FM20

Standard specifications



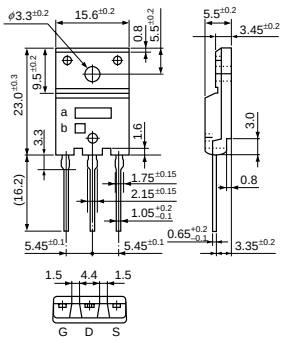
ULrecognized specifications



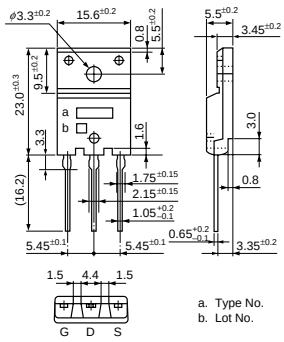
a. Type No.
b. Lot No.

❷ FM100

Standard specifications

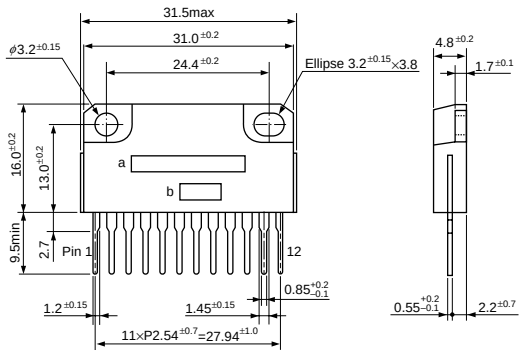


ULrecognized specifications



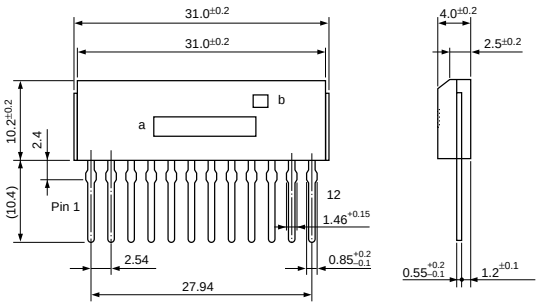
a. Type No.
b. Lot No.

❸ SLA



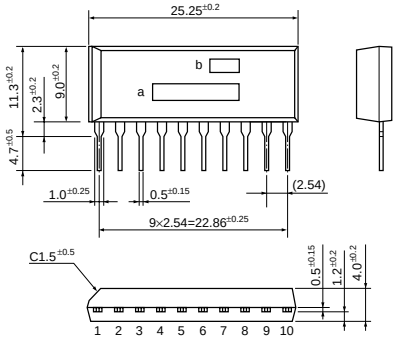
a. Type No.
b. Lot No.

❹ SMA



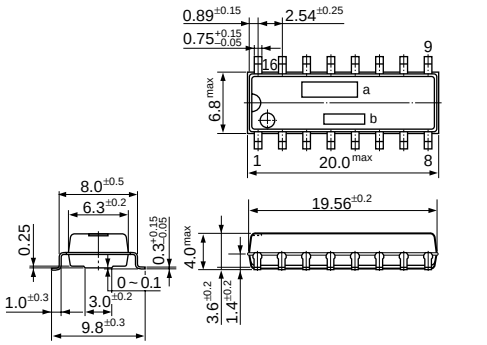
a. Type No.
b. Lot No.

❺ STA



a. Type No.
b. Lot No.

❻ SDK



a. Type No.
b. Lot No.

4 Thyristors

4-1. Thyristors

Thyristors

Parameter / Type No.	Absolute Maximum Ratings					Electric Characteristics				Fig. No.
	Repetitive Peak Off-state voltage	Non-repetitive Peak Off-state voltage	Mean On-state Current	Surge On-state Current	Junction Temperature	On-state Voltage	Gate Trigger Voltage	Gate Trigger Current	Thermal Resistance	
	Tj = –40 to Tjmax R_{GK} = 1kΩ		50Hz Half-cycle Sinewave Continuous Current	Non-repetitive 50Hz Half-cycle Sinewave Single Shot Tj = Tjmax		T_C = 25°C	V_D = 6V R_L = 10Ω T_C = 25°C		Junction to Case	
	V_{DRM} (V)	V_{DSM} (V)	$I_{T(AV)}$ (A)	I_{TSM} (A)	Tj (°C)	V_{TM} (V) max	V_{GT} (V) max	I_{GT} (mA)	Rth (j-c) (°C/W) max	
TF321S	200	300	3.0 (T_C = 93°C)	60	–40 to +125	1.4 (I_{TM} = 5A)	0.7 typ 1.5 max	3.0 typ 15 max	5.0	1
TF341S	400	500								
TF361S	600	700								
TF521S	200	300	5.0 (T_C = 87°C)	80	–40 to +125	1.4 (I_{TM} = 10A)	1.5	3.0 typ 15 max	4.0	
* TF541S	400	500								
* TF561S	600	700								
TF821S	200	300	8.0 (T_C = 74°C)	120	–40 to +125	1.4 (I_{TM} = 15A)	1.5	5.0 typ 15 max	3.6	
* TF841S	400	500								
* TF861S	600	700								
TF541S-A	400 (R_{GK} = 470Ω)	500	5.0 (T_C = 88°C)	80	–40 to +125	1.4 (I_{TM} = 10A)	1.5	0.03 typ 0.2 max	4.0	
TF561S-A	600 (R_{GK} = 470Ω)	700								
TF321M	200	300	3.0 (T_C = 102°C)	60	–40 to +125	1.4 (I_{TM} = 5A)	1.5	2.0 typ 10 max	3.0	2
TF341M	400	500								
TF361M	600	700								
TF521M	200	300	5.0 (T_C = 96°C)	80	–40 to +125	1.4 (I_{TM} = 10A)	1.5	3.0 typ 15 max	3.0	
TF541M	400	500								
TF561M	600	700								
TF821M	200	300	8.0 (T_C = 83°C)	120	–40 to +125	1.4 (I_{TM} = 15A)	1.5	5.0 typ 15 max	2.7	
TF841M	400	500								
TF861M	600	700								
TF321M-A	200	300	3.0 (T_C = 102°C)	60	–40 to +110	1.4 (I_{TM} = 5A)	1.0	0.1 max	3.0	
TF341M-A	400	500								
TF361M-A	600	700								

* The devices are available in UL recognized and standard specifications. The markings and shapes of UL recognized device are slightly different from standard devices.

Thyristors (with built-in Avalanche Diode)

Parameter / Type No.	Absolute Maximum Ratings				Electrical Characteristics									Fig. No.
	Repetitive Peak Off-state Voltage	Mean On-state Current	Surge On-state Current	Junction Temperature	Breakover Voltage			Breakover Current		On-state Voltage	Gate Trigger Voltage	Gate Trigger Current		Thermal Resistance	
	Tj = –10 to +125°C R_{GK} = 1kΩ	Half-cycle Sinewave (180°C) Continuous Current (T_C = 92°C)	Non-Repetitive Half-cycle Sinewave Single Shot 50Hz Tj = 125°C		V_{BO} (V)			I_{BO} (mA)		I_{TM} = 5A T_j = 25°C	V_D = 6V R_L = 10Ω T_j = 25°C			Junction to Case	
	V_{DRM} (V)	$I_{T(AV)}$ (A)	I_{TSM} (A)	Tj (°C)	min	typ	max	min	max	V_{TM} (V) max	V_{GT} (V) max	I_{GT} (mA) min	I_{GT} (mA) max	Rth (j-c) (°C/W) max	
TFD312S-C	20	3.0	60	–10 to +125	27.0	30.0	33.0	0.2	15	1.4	1.0	0.2	10	5.0	1
TFD312S-F	35				50.0	55.0	60.0								
TFD312S-G	45				60.0	65.0	70.0								
TFD312S-J	80				90.0	100.0	110.0								
TFD312S-K	100				115.0	125.0	135.0								
TFD312S-L	120				140.0	150.0	160.0								
TFD312S-M	145				163.0	175.0	187.0								
TFD312S-N	170				185.0	200.0	215.0								
TFD312S-O	190				210.0	225.0	240.0								

4-2. Triacs

■Triacs

Parameter / Type No.	Absolute Maximum Ratings				Electrical Characteristics									Fig. No.
	Repetitive Peak Off-state Volage	RMS On-state Current	Surge On-state Current	Junction Tempera-ture	On-state Voltage	Gate Trigger Voltage				Gate Trigger Current				Thermal Resistance	
		Conduction angle = 360°	50Hz Full-cycle Sinewave Non-repetitive Peak Value Tj = 125°C		Test by Pulse Tj = 25°C	V_D = 6V, R_L = 10Ω, T_C = 25°C				V_D = 6V, R_L = 10Ω, T_C = 25°C				Junction to Case	
						V_{GT} (V)				I_{GT} (mA)					
						T_2^+, G^+	T_2^+, G^-	T_2^-, G^+	T_2^-, G^-	T_2^+, G^+	T_2^+, G^-	T_2^-, G^+	T_2^-, G^-	Rth (j-c)	
	V_{DRM} (V)	$I_{T\ (RMS)}$ (A)	I_{TSM} (A)	Tj (°C)	V_{TM} (V)									(°C/W)	
					max	max		typ	max	max		typ	max	max	
*TM341S-L	400	3.0	30	–40 to	1.6	2.0	2.0	0.8	2.0	20	20	15	20	5.0	
*TM361S-L	600	(T_C = 109°C)		+125	(I_{TM} = 5A)										
*TM541S-L	400	5.0	50	–40 to	1.6	2.0	2.0	0.8	2.0	20	20	15	20	4.0	
*TM561S-L	600	(T_C = 104°C)		+125	(I_{TM} = 7A)										
*TM841S-L	400	8.0	80	–40 to	1.6	2.0	2.0	0.9	2.0	30	30	30	30	3.6	1
*TM861S-L	600	(T_C = 90°C)		+125	(I_{TM} = 10A)										
*TM1041S-L	400	10	100	–40 to	1.6	2.0	2.0	0.9	2.0	30	30	30	30	3.3	
*TM1061S-L	600	(T_C = 90°C)		+125	(I_{TM} = 14A)										
*TM1241S-L	400	12	120	–40 to	1.6	2.0	2.0	1.0	2.0	30	30	70	30	3.0	
*TM1261S-L	600	(T_C = 85°C)		+125	(I_{TM} = 16A)										
*TM1641S-L	400	16	150	–40 to	1.6	2.0	2.0	1.0	2.0	30	30	70	30	3.0	
*TM1661S-L	600	(T_C = 74°C)		+125	(I_{TM} = 20A)										
TM341M-L	400	3.0	30	–40 to	1.6	2.0	2.0	0.8	2.0	20	20	15	20	3.0	
TM361M-L	600	(T_C = 115°C)		+125	(I_{TM} = 5A)										
TM541M-L	400	5.0	50	–40 to	1.6	2.0	2.0	0.8	2.0	20	20	15	20	2.7	2
TM561M-L	600	(T_C = 111°C)		+125	(I_{TM} = 7A)										
TM841M-L	400	8.0	80	–40 to	1.6	2.0	2.0	0.9	2.0	30	30	30	30	1.8	
TM861M-L	600	(T_C = 108°C)		+125	(I_{TM} = 10A)										
STA203A (Triac array)	400	1.2 (T_C = 97°C)	10	–40 to +125	1.6 (I_{TM} = 1.6A)	3.5	1.2	2.0	1.2	3	3.0	13	3.0	20	4
TM341S-R	400	3.0	30	–40 to	1.6	1.8	1.2	3.0	1.2	12	12	70	12	5.0	
TM361S-R	600	(T_C = 109°C)		+125	(I_{TM} = 5A)	(V_D = 20V, R_L = 40Ω, T_C = 25°C)									
TM541S-R	400	5.0	50	–40 to	1.6	1.8	1.2	3.1	1.2	12	12	70	12	4.0	
TM561S-R	600	(T_C = 104°C)		+125	(I_{TM} = 7A)	(V_D = 20V, R_L = 40Ω, T_C = 25°C)									
TM1041S-R	400	10.0	80	–40 to	1.6	2.0	1.2	2.4	1.2	7.0	7.0	25	7.0	3.3	1
TM1061S-R	600	(T_C = 90°C)		+125	(I_{TM} = 14A)	(V_D = 20V, R_L = 40Ω, T_C = 25°C)									
TM1241S-R	400	12.0	110	–40 to	1.6	1.8	1.2	2.1	1.2	8	8	25	8	3.0	
TM1261S-R	600	(T_C = 84°C)		+125	(I_{TM} = 16A)	(V_D = 20V, R_L = 40Ω, T_C = 25°C)									
TM1641P-L (L)	400	16	160	–40 to	1.6	1.5	1.5	1.0	1.5	30	30	70	30	1.2	3
TM1661P-L (L)	600	(T_C = 103°C)		+125	(I_{TM} = 20A)										

* The devices are available in UL recognized and standard specifications. The markings and shapes of UL recognized device are slightly different from standard devices.

4-3. PNPN Switch

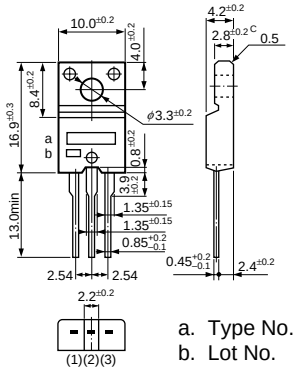
■PNPN Switch

Parameter / Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	Repetitive Peak Off-state Volage	RMS On-state Current	Surge On-state Current	On-state Current Ascent Rate	Junction Temperature	Breakover Voltage	Breakover Current	On-state Voltage	
		DC T $\ell \leq$ 112°C	Ta =25°C, Wp =10μs Full-cycle Sinewave 1 Cycle Peak Value f = 50Hz					I_T = ±10A	
	V_{DRM} (V)	$I_{T\ (RMS)}$ (A)	I_{TSM} (A)	di$_T$/dt (A/μsec)	Tj (°C)	V_{BO} (V)	I_{BO} (μA)	V_T (V)	
ET020	170	0.6	80	30	–40 to +125	190 to 210	100 max	±2.5	5

● External Dimensions (unit: mm)

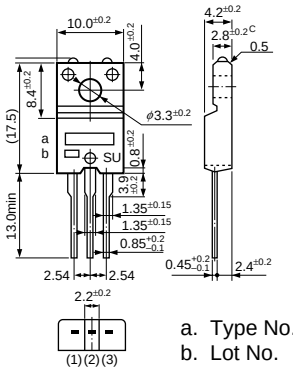
Fig. 1 Full-Mold type (FM20)

Standard specifications



a. Type No.
b. Lot No.

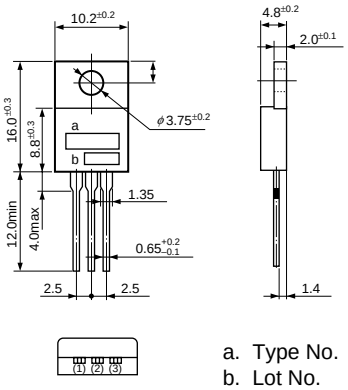
UL recognized specifications



a. Type No.
b. Lot No.

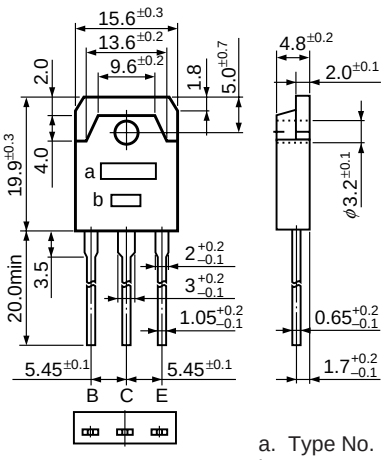
Terminal No.	Thyristor	Triac
(1)	Cathode (K)	Terminal 1 (T_1)
(2)	Anode (A)	Terminal 2 (T_2)
(3)	Gate (G)	Gate (G)

Fig. 2 MT-25 (TO-220)



a. Type No.
b. Lot No.

Fig. 3 MT-100 (TO-3P)



a. Type No.
b. Lot No.

Fig. 4

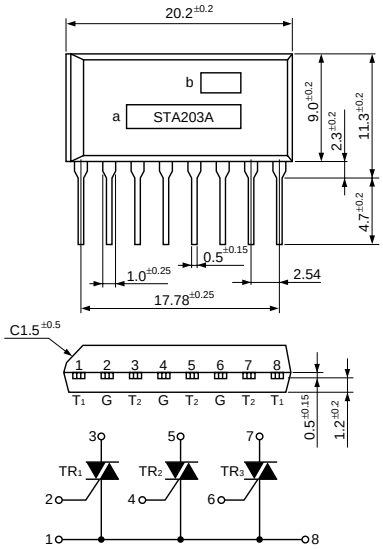
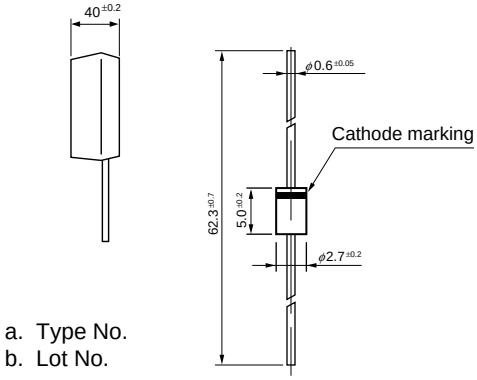


Fig. 5



a. Type No.
b. Lot No.

5 Diodes

5-1. Rectifier Diodes

Surface Mount Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F max (V)	V_F Condition I_F (A)	I_R max (μA)	
SFPM-52	200	0.9	30	–40 to +150		1.00	1.0	10	1
-54	400								
SFPM-62	200	1.0	45			0.98			
-64	400								

Axial Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F max (V)	V_F Condition I_F (A)	I_R max (μA)	
AM01Z	200	1.0	35	–40 to +150		0.98	1.0	10	2
01	400								
01A	600								
EM01Z	200	1.0	45	–40 to +150		0.97	1.0	10	3
01	400								
01A	600								
EM 1Y	100	1.0	45	–40 to +150		0.97	1.0	10	4
1Z	200								
1	400								
1A	600								
1B	800		35						
1C	1000								
EM 2	400	1.2	80	–40 to +150		0.92	1.2		
2A	600								
2B	800								
RM 1Z	200	1.0	50	–40 to +150		0.95	1.0	5	5
1	400								
1A	600								
1B	800	0.8	40			1.20			
1C	1000								
RM 11A	600	1.2	100	–40 to +150		0.92	1.5	10	
11B	800								
11C	1000								
RM 10Z	200	1.5	120	–40 to +150		0.91	1.5	10	
10	400	1.2	150						
10A	600								
10B	800								
RM 2Z	200	1.2	100	–40 to +150		0.91	1.5	10	6
2	400								
2A	600								
2B	800								
2C	1000								
RO 2Z	200	1.2	80	–40 to +150		0.92	1.5	10	
2	400								
2A	600								
2B	800								
2C	1000								
RM 3	400	2.5	150	–40 to +150		0.95	2.5	10	7
3A	600								
3B	800								
3C	1000	2.0							

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F max (V)	V_F Condition I_F (A)	I_R max (μA)	
RM 4Y	100	3.0	200	–40 to +150		0.95	3.0	10	8
4Z	200								
4	400								
4A	600								
4B	800		150			0.97			
4C	1000								
4AM	600	3.2	350			0.92	3.5		

Center Tap Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F max per element (V)	V_F Condition IF (A)	I_R max per element (μA)	
FMM-22S,R	200	10.0	100	–40 to +150		1.1	5.0	10	9
-24S,R	400								
-26S,R	600								
FMM-31S,R	100	20.0	120	–40 to +150		1.1	10.0	10	10
-32S,R	200								
-34S,R	400								
-36S,R	600								

Bridge Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F max per element (V)	V_F Condition IF (A)	I_R max per element (μA)	
RBV-401	100	4.0	80	–40 to +150		1.05	2.0	10	11
-402	200								
-404	400					1.10			
-406	600								
-408	800		100			1.00			
-40C	1000								
-406M	600		120			0.92			
-406H	600					1.00			
RBV-601	100	6.0	120	–40 to +150		1.00	3.0	10	12
-602	200								
-604	400		150			1.05			
-606	600								
-608	800		170			0.95			
-606H	600		140			1.05			
RBV-1306	600	13.0	80	–40 to +150		1.20	6.5	10	12
-1506S	600	15.0	150			1.10	7.5		
-1506	600		200			1.05		50	
-2506	600	25.0	350				12.5		

5-2. Fast Recovery Rectifier Diodes

Axial Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (μA) max	trr1 (μs) max	trr2 (μs) max	
RC 2	2000	0.20	20	–40 to +150		2.00	10	4.0	1.30	5
EH 1Z	200	0.60	30	–40 to +150		1.35	10	4.0	1.30	4
1	400									
1A	600									
RH 1Z	200	0.60	35	–40 to +150		1.30	5	4.0	1.30	5
1	400									
1A	600									
1B	800									
1C	1000									
AS01Z	200	0.60	20	–40 to +150		1.50	10	1.5	0.60	2
01	400									
01A	600									
ES01Z	200	0.70	30	–40 to +150		2.50	10	1.5	0.60	3
01	400									
01A	600									
01F	1500	0.50	20			2.00				
ES 1Z	200	0.70	30	–40 to +150		2.50	10	1.5	0.60	4
1	400									
1A	600									
1F	1500	0.50	20			2.00				
RS 1A	600	0.70	30	–40 to +150		2.50	10	1.5	0.60	5
1B	800									
AU01Z	200	0.50	15	–40 to +150		1.70	10	0.4	0.18	2
01	400									
01A	600									
AU02Z	200	0.80	25	–40 to +150		1.30	10	0.4	0.18	
02	400									
02A	600									
RU 1	400	0.25	15	–40 to +150		2.50	10	0.4	0.18	5
1A	600									
1B	800									
1C	1000	0.20				3.00				
EU01Z	200	0.25	15	–40 to +150		2.50	10	0.4	0.18	3
01	400									
01A	600									
EU 1Z	200	0.25	15	–40 to +150		2.50	10	0.4	0.18	4
1	400									
1A	600									
RF 1Z	200	0.60	15	–40 to +150		2.00	10	0.4	0.18	5
1	400									
1A	600									
1B	800									
RU 2Z	200	1.00	20	–40 to +150		1.50	10	0.4	0.18	
2	600									
2B	800									
2C	1000	0.80								
EU02Z	200	1.00	15	–40 to +150		1.40	10	0.4	0.18	3
02	400									
02A	600									
EU 2Z	200	1.00	15	–40 to +150		1.40	10	0.4	0.18	4
2	400									
2A	600									
2YX	100	1.20	25			0.90		0.2	0.08	

● trr1 = I_F/I_{RP} = 1:1, trr2 = I_F/I_{RP} = 1:2

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (μA) max	trr1 (μs) max	trr2 (μs) max	
RU 2M	400	1.10	20	–40 to +150		1.20	10	0.4	0.18	5
2AM	600									
2YX	100	1.50	30			0.95		0.2	0.08	
RU 20A	600	1.50	50			1.10		0.4	0.18	
RU 3	400	1.50	20	–40 to +150		1.50	10	0.4	0.18	6
3A	600									
3B	800	1.10								
3C	1000	1.50				2.00				
3M	400	1.50	50			1.10				
3AM	600									
3YX	100	2.00				0.95		0.2	0.08	
RU 30Y	100	3.50	100	–40 to +150		0.89	10	0.2	0.08	7
30Z	200	2.00	80			0.97		0.4	0.18	
30	400		200			0.95				
30A	600									
RU 4Y	100	3.50	70	–40 to +150		1.30	10	0.4	0.18	8
4Z	200									
4	400	3.00	50			1.50				
4A	600									
4B	800					1.60	50			
4C	1000	2.50								
4M	400	3.50	70			1.30	10			
4AM	600									
4YX	100	4.00	100			0.85		0.2	0.08	

● trr1 = I_F/I_{RP} = 1:1, trr2 = I_F/I_{RP} = 1:2

1-Chip Frame Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (μA) max	trr1 (μs) max	trr2 (μs) max	
FMU-G2YXS	100	10.0	100	–40 to +150		1.00	50	0.2	0.08	13
-G16S	600	5.0	30			1.25		0.4	0.18	
-G26S	600	10.0	40			1.35				

● trr1 = I_F/I_{RP} = 1:1, trr2 = I_F/I_{RP} = 1:2

Center Tap Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (μA) max per element	trr1 (μs) max	trr2 (μs) max	
FMU-12S,R	200	5.0	30	–40 to +150		1.5	50	0.4	0.18	9
-14S,R	400									
-16S,R	600									
FMU-21S,R	100	10.0	40	–40 to +150		1.5	50	0.4	0.18	9
-22S,R	200									
-24S,R	400									
-26S,R	600									
FMU-32S,R	200	20.0	80	–40 to +150		1.5	50	0.4	0.18	10
-34S,R	400									
-36S,R	600									

● trr1 = I_F/I_{RP} = 1:1, trr2 = I_F/I_{RP} = 1:2

5-3. Ultra-Fast Recovery Rectifier Diodes

Surface Mount Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (μA) max per element	trr1 (ns) max	trr2 (ns) max	
SFPL-52	200	0.9	25	–40 to +150		0.98	10	50	35	1
-62		1.0								
SPX-G32S		3.0	50				50	30	25	14
-62S*		6.0	80							

*Center tap

Axial Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (μA) max	trr1 (ns) max	trr2 (ns) max	
AG01Y	70	1.0	25	–40 to +150		1.20	100	100	50	2
01Z	200	0.7	15			1.80				
01	400									
01A	600	0.5								
EG01Y	70	1.0	30	–40 to +150		1.20	100	100	50	3
01Z	200	0.7	15			1.90	50			
01	400					2.00				
01A	600	0.5	10				100			
01C	1000					3.30	50			
EG 1Y	70	1.1	30	–40 to +150		1.20	100	100	50	4
1Z	200	0.8	15			1.70	50			
1	400					1.80				
1A	600	0.6	10			2.00	100			
RG 1C	1000	0.7	10	–40 to +150		3.30	20	100	50	5
RG 10Y	70	1.5	50			1.10	50	100	50	
10	400	1.2				1.80				
10A	600	1.0				2.00				
RG 2Y	70	1.5	50	–40 to +150		1.10	50	100	50	6
2Z	200	1.2				1.50				
2	400					1.80				
2A	600	1.0				2.00				
RG 4Y	70	3.5	100	–40 to +150		1.30	100	100	50	8
4Z	200	3.0	80			1.70				
4	400					1.80	50			
4A	600	2.0	50			2.00				
4C	1000		60			3.00				
EN01Z	200	1.0	50	–40 to +150		0.92	10	100	50	3
RN 1Z		1.5	60				20			5
RN 2Z		2.0	70				50			6
RN 3Z		3.0	80							7
RN 4Z		3.5	120							8
AP01C	1000	0.2	5	–40 to +150		4.00	100	200	80	2
EP01C							5			3
RP 1H	2000	0.1				7.00	20			5
RU 1P	1000	0.4	10			4.00	5	100	50	
AL01Z	200	1.0	25	–40 to +150		0.98	100	50	35	2
EL 1Z		1.5	20							4
EL 1	400		25			1.30				
EL02Z	200	2.0	30			0.98	50	40		3
RL 10Z								50		5
RL 2Z							100			6
2	350		40			1.30	10			
2A	600	1.1	30			1.50	50			7
RL 3Z	200	3.5	80			0.95				
3	350					1.30	100			
3A	600	2.0	60			1.50	50			8
RL 4Z	200	3.5	80			0.95	150			
4A	600	3.0				1.50	50			
RX 3Z	200	3.0	80	–40 to +150		0.98	50	30	25	7

1-Chip Frame Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (μA) max	trr1 (ns) max	trr2 (ns) max	
FMG-G26S	600	4.0	50	–40 to +150		2.50	500	100	50	13
-G36S		8.0	80							15
-G2CS	1000	3.0	30			4.00	50			13
-G3CS		5.0	60			3.50	100	150	70	15
FMP-G12S	200	5.0	65	–40 to +150		1.15	50	150	70	13
FMN-G12S			100			0.92	100	100	50	
FML-G12S	200	5.0	65	–40 to +150		0.98	250	40	35	13
-G13S	300		70			1.30	100	50		
-G14S	400									
-G16S	600		50			1.50				
-G22S	200	10.0	150			0.98	500	40	30	
-G26S	600		100			1.70	100	65	40	
FMX-G12S	200	5.0	65	–40 to +150		0.98	100	30	25	13
-G22S		10.0	150				200			

Center Tap Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (mA) max per element	trr1 (ns) max	trr2 (ns) max	
FMG-12S,R	200	5.0	35	–40 to +150		1.80	0.50	100	50	9
-13S,R	300									
-14S,R	400					2.00				
FMG-22S,R	200	10.0	65	–40 to +150		1.80	0.50	100	50	9
-23S,R	300									
-24S,R	400	8.0				2.00				
-26S,R	600	6.0	50			2.20				
FMG-32S,R	200	20.0	150	–40 to +150		1.80	1.00	100	50	10
-33S,R	300									
-34S,R	400	16.0	100			2.00				
-36S,R	600	15.0	80			2.20				
FMC-26U	600	6.0	50	–40 to +150		2.00	0.50	70	35	9
FML-12S	200	5.0	35	–40 to +150		0.98	0.15	40	30	9
-13S	300		40			1.30	0.05	50	35	
-14S	400									
FML-22S	200	10.0	65	–40 to +150		0.98	0.25	40	30	9
-23S	300		70			1.30	0.10	50	35	
-24S	400									
FML-32S	200	20.0	150	–40 to +150		0.98	0.60	40	30	10
-33S	300		100			1.30	0.20	50	35	
-34S	400									
-36S	600					1.70	0.10	65	35	
FMX-12S	200	5.0	35	–40 to +150		0.98	0.05	30	25	9
-22S		10.0	65				0.10			
-22SL		15.0	100				0.15			
-32S		20.0	150				0.20			10

Bridge Type

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (mA) max per element	trr1 (ns) max	trr2 (ns) max	
RBA-402L	200	4.0	80	–40 to +150		0.98	0.05	40	30	16
RBV-602L	200	6.0	100			1.00	0.25	50	35	12

5-4. Damper Diodes

For TV

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.	Remarks
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (μA) max per element	trr1 (μs) max	trr2 (μs) max		
RH 10F	1500	0.8	60	–40 to +150		1.0	10	4.0	1.30	5	
2D	1300	1.0								6	
2F	1500		50			1.3	50				
3F	1500	2.5								7	
3G	1600										
4F	1500					1.5	10			8	
RS 3FS	1500	2.0				1.1	50	2.0	0.80	7	
4FS		2.5				1.5		1.0	0.40	8	
FMV-G5FS	1500	10.0	50			1.5	50	2.0	0.80	17	
FMR-G5HS	1800					1.6	20	1.8	0.70		
FMV-3FU	1500	5.0	50			1.4	50	4.0	1.30	18	For DM damper
	600					1.3		0.4	0.18		
FMV-3GU	1700	5.0	50			1.5	50	2.0	0.80		
	600					1.3		0.4	0.18		

For CRT Display

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics				Fig. No.	Remarks
	V_{RM} (V)	$I_{F(AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (μA) max per element	trr1 (μs) max	trr2 (μs) max		
RP 3F	1500	2.0	50	–40 to +150		1.7	50	0.70	0.30	7	
RU 4D	1300	1.5				1.8		0.40	0.18	8	
4DS		2.5									
FMP-G2FS	1500	5.0	50	–40 to +150		2.0	50	0.70	0.30	13	
FMQ-G2FLS		10.0				1.8		1.20	0.40		
-G2FS						2.8		0.50	0.20		
FMQ-G5FMS	1500					2.4				17	
-G5GS	1700					2.7	100				
FMP-G5HS	1800	8.0				2.0	25	1.00	0.40		
RG 2A2	1300	0.5	5	–40 to +150		3.5	100	0.10	0.05	6	For compen-sation
RC 3B2	1600	1.0	20			3.6		0.07	0.04	7	
FMP-3FU	1500	5.0	50	–40 to +150		2.0	50	0.70	0.30	18	For DM damper
	600					2.5		0.10	0.05		
FMQ-3GU	1700					2.0	500	0.70	0.30		
	800					4.0	100	0.07	0.04		

5-5. Schottky Barrier Diodes

Surface Mount Type

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) Condition = I_F max per element	I_R (mA) max per element	H·I_R (mA) Ta = 100°C max per element	
SFPA-51	10	1.0	60	–40 to +125		0.34	1.00	30	1
SFPB-52	20		30			0.47	0.25	10	1
SFPB-62		2.0	60				0.50	20	
SFPB-72		3.0					1.00		
SFPA-53	30	1.0	30	–40 to +125		0.36	1.50	70	1
SFPA-63		2.0	40				3.00	140	
SFPA-73		3.0	50				4.50	210	
SFPE-63		2.0	40	–40 to +150		0.55	0.20	20	
SFPJ-53		1.0	30	–40 to +125		0.45	1.00	10(Ta=125°C)	
SFPJ-63		2.0	40				2.00	20(Ta=125°C)	
SFPJ-73		3.0	50				3.00	30(Ta=125°C)	
SPJ-63S*		6.0							14
SSB-14	40	0.5	4	–40 to +125		0.58	0.10	5	19
SFPB-54		1.0	30			0.55	1.00	50	1
SFPB-64		1.5	60						
SFPB-74		2.0				0.50	5.00		
SFPE-64		2.0	40	–40 to +150		0.60	0.20	20	
SPB-G34S		3.0	50	–40 to +125		0.55	30.00	50	14
SPB-G54S		5.0	60				50.00		
SPB-64S*		6.0	50				30.00		14
MPE-24H*		15.0	100	–40 to +150		0.60	0.75	50(Ta=150°C)	20
SFPB-56	60	0.7	10	–40 to +125		0.62	1.00	7.5	1
SFPB-66		1.5	25					15	
SFPB-76		2.0	40				2.00	20	
SPB-G56S		5.0	60			0.70	35.00	50	14
SFPB-59	90	0.7	10			0.81	1.00	5	1
SFPB-69		1.5	40				2.00	10	

*Center tap

Axial Type

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (mA) max	H·I_R (mA) Ta = 100°C max	
RK 42	20	3.0	100	–40 to +125		0.47	1.00	20	8
AK 03	30	1.0	25	–40 to +125		0.55	1.00	50(Tj=100°C)	2
EA 03			30			0.36	1.50	70	3
EK 03			40			0.55	5.00	50	
EK 13		1.5							4
RA 13		2.0				0.36	3.00	140	5
RK 13		1.7	60			0.55	5.00	50	
RK 33		2.5	50						6
RJ 43		3.0				0.45	3.00	30(Tj=125°C)	8
RK 43			80			0.55	5.00	50	
AK 04	40	1.0	25	–40 to +125		0.55	1.00	50(Tj=100°C)	2
EK 04			40				5.00	50	3
EK 14		1.5							4
RK 14		1.7	60						5
RK 34		2.5	50						6
RK 44		3.0	80						8
AK 06	60	0.7	10	–40 to +125		0.62	1.00	7.5	2
EK 06									3
EK 16		1.5	25					15	4
RK 16									5
RK 36		2.0	40				2.00	25	6
RK 46		3.5	70				3.00	35	8

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (mA) max	H·I_R (mA) Ta = 100°C max	
AK 09	90	0.7	10	–40 to +125		0.81	1.00	5	2
EK 09									3
EK 19		1.5	40				2.00	10	4
RK 19									5
RK 39		2.0	50				3.00	15	6
RK 49		3.5	60				5.00	30	8

1-Chip Frame Type

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max	I_R (mA) max	H·I_R (mA) Ta = 100°C max	
FMB-G12L	20	5.0	100	–40 to +125		0.47	2.00	35	13
FMB-G22H		10.0	200				5.00	65	
FMB-G14	40	3.0	60			0.55	5.00	100	
FMB-G14L		5.0							
FMB-G24H		10.0	150				10.00	65	
FMB-G16L	60	6.0	50			0.62	5.00	50	
FMB-G19L	90	4.0	60			0.81	5.00	35	

Center Tap Type

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (mA) max per element	H·I_R (mA) Ta = 100°C max per element	
FMB-22L	20	10.0	100	–40 to +125		0.47	2.00	35	9
FMB-22H		15.0	150				3.00	50	
FMB-32		20.0	200				5.00	65	10
FMB-32M		30.0	300				10.00	100	
FME-24L	40	10.0	80	–40 to +150		0.60	0.50	30	9
FME-24H		15.0	100				0.75	50	
FMB-24		4.0	50	–40 to +125		0.55	5.00	35	
FMB-24M		6.0	60						
FMB-24L		10.0	60						
FMB-24H		15.0	100				7.50	50	
FMB-34S		12.0	75			0.58	5.00	35	10
FMB-34		15.0	150			0.55	10.00	65	
FMB-34M		30.0	300				20.00	100	
CTB-24		4.0	60				5.00	50	21
CTB-24L		10.0						35	
CTB-34		15.0	150				10.00	65	22
CTB-34M		30.0	300				20.00	100	
FMB-26	60	4.0	40	–40 to +125		0.62	1.00	25	9
FMB-26L		10.0	50				2.50	50	
FMB-36		15.0	100				5.00	75	10
FMB-36M		30.0	150				10.00	150	
FMB-29	90	4.0	50	–40 to +125		0.81	3.00	15	9
FMB-29L		8.0	60				5.00	35	
FMB-39		15.0					10.00	50	10
FMB-39M		20.0	150				15.00	60	

Bridge Type

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	V_{RM} (V)	$I_{F\ (AV)}$ (A)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_F (V) max per element	I_R (mA) max per element	H·I_R (mA) Ta = 100°C max per element	
RBA-404B	40	4.0	40	–40 to +125		0.55	2.0	20	16
-1004B		10.0	60				5.0	35 (Tj=125°C)	
-406B	60	4.0	40			0.62	2.0	20	

5-6. Avalanche Diodes

(Ta = 25°C)

Type No.	Absolute Maximum Ratings				Electrical Characteristics			Fig. No.
	V_{RM} (V)	I_{ZSM} (A) Instantaneous	Tj (°C)	Tstg (°C)	V_Z (V) 1mA Instantaneous	I_R (μA) max	$I_{R(H)}$ (μA) max	
RM 25	40	3.0	–40 to +130		50 to 61.5	5	20	5
RM 26	50				60 to 70.0			
R 2M	130	1.0	–40 to +150		135 to 180.0	10	50	
RY 23	200	0.1	–40 to +130		250 to 400.0	10	50	
RY 24	400				400 to 450.0			

With Built-in Thyristor

(Ta = 25°C)

Type No.	Absolute Maximum Ratings				Electrical Characteristics			Fig. No.
	V_{RDC} (–10°C) (V)	I_{TSM} (A) 50Hz Half-cycle Sinewave Single Shot	Tj (°C)	Tstg (°C)	V_Z (V) 1mA Instantaneous	I_R (μA) max	H·I_R (μA) max	
RZ1030	20	30	–10 to +125	–40 to +150	27 to 33	10	50	5
1040	28				34 to 40			
1055 *	40				50 to 60			
1065 *	50				60 to 70			
1100 *	80				90 to 110			
1125	105				115 to 135			
1150	125				140 to 160			
1175	150				165 to 185			
1200	180				195 to 215			
1225 *	190				210 to 240			
1250	180				235 to 265			
EZ0150	125				140 to 160			3

* Under development

5-7. Power Zener Diodes

(Ta = 25°C)

Type No.	Absolute Maximum Ratings					Electrical Characteristics			Fig. No.
	P_R (W)	V_{DC} (V)	I_{ZSM} (A) Instantaneous	Tj (°C)	Tstg (°C)	V_Z (V) 1mA Instantaneous	I_R (μA) max	I_R (H) (mA) max	
PZ 127	150	20	4	–40 to +150		27±5.0	50	1.0	5
227	300		8						6
427	450		9						8
628	1500		65						23
SFPZ-68	50	20	2			28±3.0	10	1.0	1
SPZ-G36	450	30	11			36±3.6	5	0.1	14

5-8. Silicon Varistors

Type No.	Absolute Maximum Ratings (Ta = 25°C)				Electrical Characteristics (Ta = 25°C)								Fig. No.
	I_F (mA)	I_{FSM} (A)	Tj (°C)	Tstg (°C)	V_{F1} (V)	I_{F1} (mA)	V_{F2} (V)	I_{F2} (mA)	V_{F3} (V)	I_{F3} (mA)	I_F (μA) max	V_F (V)	
VR-60SS	400	15.0	–40 to +100		1.5 max	1000	–	–	–	–	20	0.2	24
-61SS	150	7.5			2.30 ±0.25	1	2.75 ±0.25	10	3.1 ±0.25	70	–	–	
SV-2SS	150	–	–40 to +100		4.0 max	100	–	–	–	–	50	1.2	
-3SS	250	–			2.0 max						50	0.6	
-4SS	150	–			1.80 ±0.20	1	2.15 ±0.20	10	2.4 ±0.25	30	50	0.9	
SV 02YS	200	30.0	–40 to +130		1.20 ±0.20	1	1.50 ±0.25	70	–	–	10 (I_R)	100 (V_R)	3
03YS	150	16.0			1.80 ±0.20		2.30 ±0.25						
04YS	100	12.0			2.35 ±0.25		3.00 ±0.30						
05YS	80	10.0			3.00 ±0.30		3.80 ±0.40						
06YS	70	8.0			3.50 ±0.35		4.50 ±0.45						

5-9. High Voltage Rectifier Diodes

(Ta = 25°C)

Type No.	Absolute Maximum Ratings						Electrical Characteristics				Fig. No.
	V_{RM} (kV)	$I_{F(AV)}$ (mA) *	I_{FSM} (A)	Tc (°C)	Tj (°C)	Tstg (°C)	V_F (V) max	V_F Condition IF (mA)	I_R (μA) max	trr (μs) max	
SHV-02	2	2.0	0.3	100	–40 to +120		16	10	1.0	0.18	25
SHV-03S	3						16				26
SHV-03	3		0.5				16				
-10	10						40				27
-12	12						45				
-14	14						55				
-16	16						60				28
-20	20						75				
-24	24						75				
SHV-06EN	6	2.0	0.5	100	–40 to +120		26	10	1.0	0.15	29
-08EN	8						32				
-10EN	10						42				30
-12EN	12						48				
SHV-08DN	8						30			0.15	29
-10DN	10						38				30
-12DN	12						45				

* Load C for FBT high voltage current

5-10. High Voltage Rectifier Diodes for Microwave Oven

(Ta = 25°C)

Type No.	Absolute Maximum Ratings				Electrical Characteristics				Fig. No.
	V_{RM} (kV)	$I_{F(AV)}$ (mA)	I_{FSM} (A)	Tstg (°C)	V_F (V) max	V_F Condition IF (mA)	I_R (μA) max	trr (μs) max	
HVR-1X-40B	9	350	20	–40 to +130	9.0	350	10	–	31
UX-C2B	8	350	15	–30 to +130	13.5	350	10	0.10	32

5-11. GaAs Schottky Barrier Diodes (GSC series)

(Ta = 25°C)

Type No.	Absolute Maximum Ratings						Electrical Characteristics							Fig. No.
	V_{RM} (V)	$I_{F(AV)}$ (A) Rectangular Wave duty =1/2 average	Tc (°C)	I_{FSM}* (A) 50Hz Half-cycle Sinewave Peak Value	I^2t* (A^2s) 50Hz Half-cycle Sinewave Single Shot	Tj (°C)	Tstg (°C)	V_F* (V)	I_F (A)	I_R* (mA) $V_R = V_{RM}$ max	$I_{R(H)}$* (mA) $V_R = V_{RM}$, max Tj = 150°C	t_{rr}* (ns) dIf/dt = 100A/μs	I_F (A)	Ct* (pF) $V_R = 0^V$ f_M =1 MHz	R_{thj-c} (°C/W)	
GSC215	150	5	114	20	2.0	–40 to +150		0.90	2.5	1.0	10	7	2	150	5.0	21
GSC218	180										15					
GSC315	150	14	80	50	18.0			0.90	7.0	3.0	30	10	6	450	3.5	22
GSC318	180										45					
GSF18R	180	7		35											7.0	9

* per element

External Dimensions (unit: mm)

Fig. 1

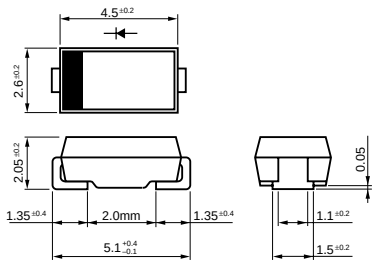


Fig. 2

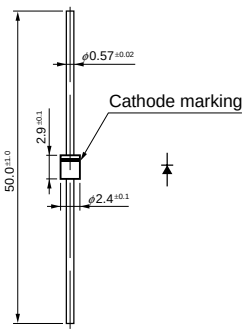


Fig. 3

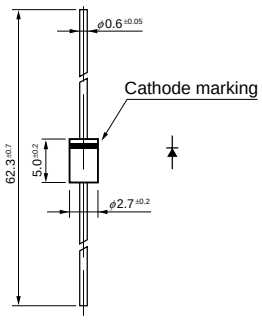


Fig. 4

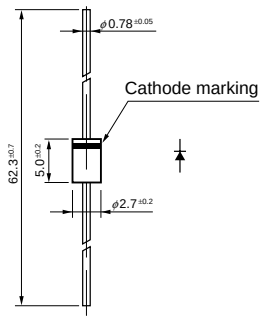


Fig. 5

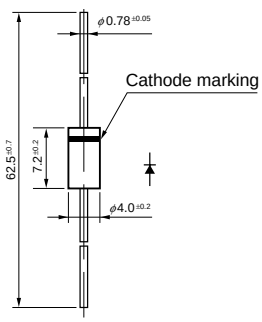


Fig. 6

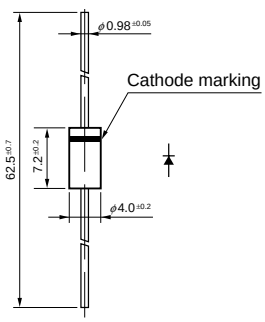


Fig. 7

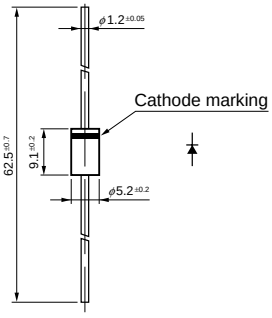


Fig. 8

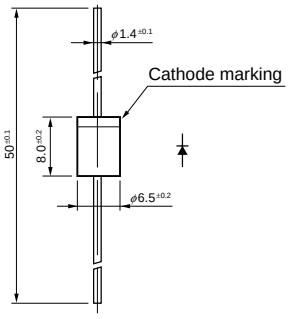
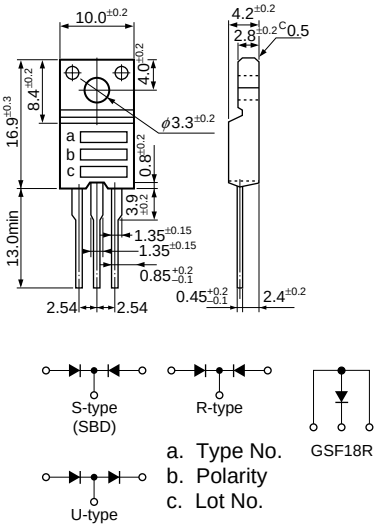
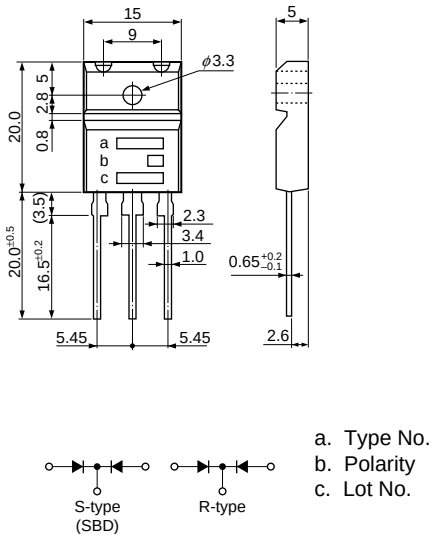


Fig. 9



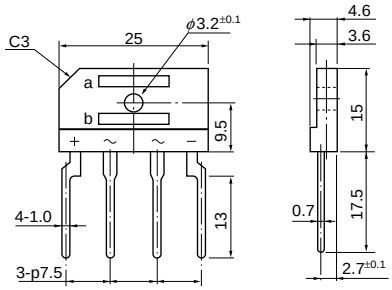
a. Type No.
b. Polarity
c. Lot No.

Fig. 10



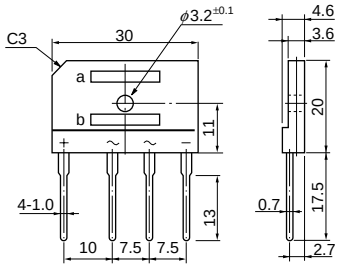
a. Type No.
b. Polarity
c. Lot No.

Fig. 11



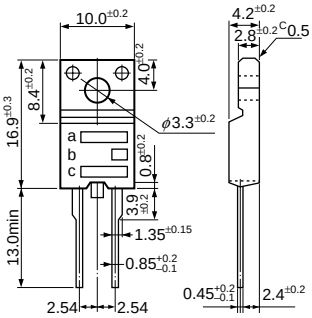
a. Type No.
b. Lot No.

Fig. 12



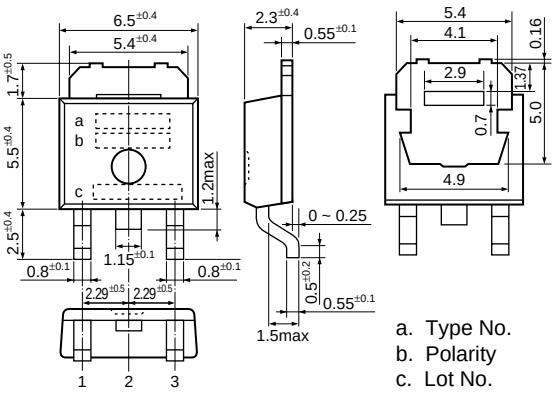
a. Type No.
b. Lot No.

Fig. 13 Full-Mold



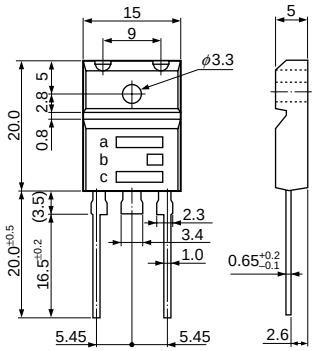
a. Type No.
b. Polarity
c. Lot No.

Fig. 14



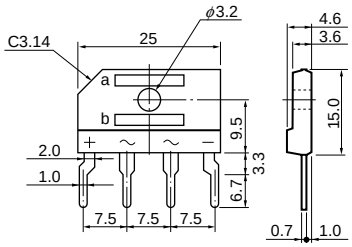
a. Type No.
b. Polarity
c. Lot No.

Fig. 15 Full-Mold



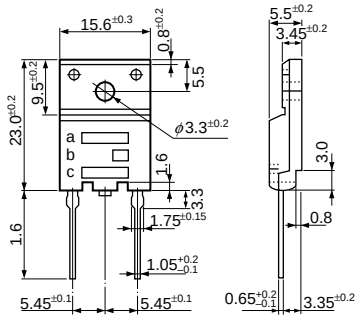
a. Type No.
b. Polarity
c. Lot No.

Fig. 16



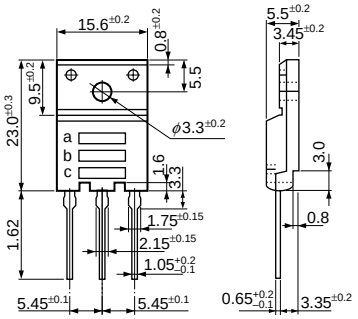
a. Type No.
b. Lot No.

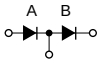
Fig. 17 Full-Mold



a. Type No.
b. Polarity
c. Lot No.

Fig. 18 Full-Mold





a. Type No.
b. Polarity
c. Lot No.

Fig. 19 SSB-14

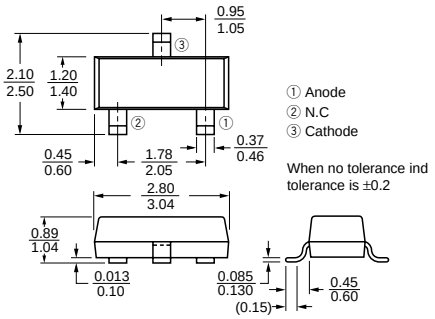


Fig. 20 MPE-24H

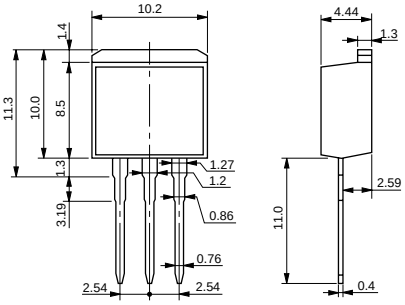
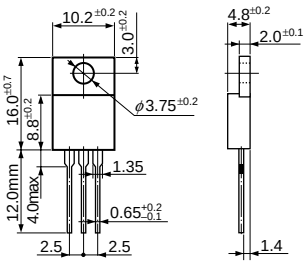
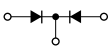


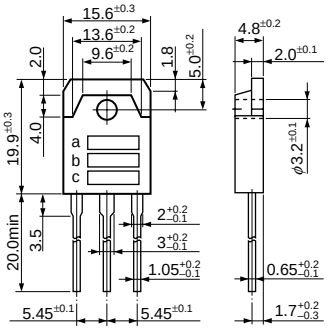
Fig. 21 MT-25 (TO-220)

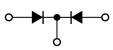




a. Type No.
b. Polarity
c. Lot No.

Fig. 22 MT-100 (TO-3P)





a. Type No.
b. Polarity
c. Lot No.

Fig. 23

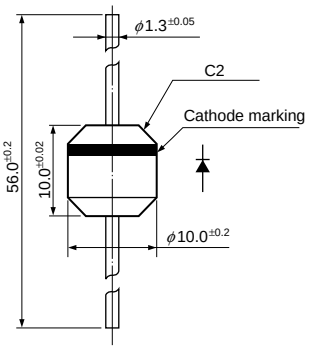


Fig. 24

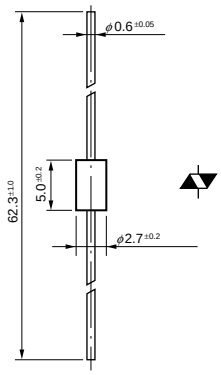


Fig. 25

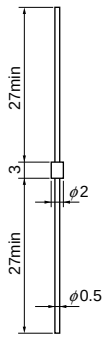


Fig. 26

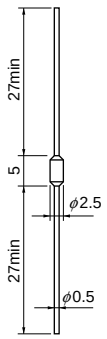


Fig. 27

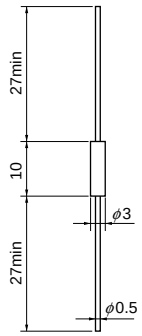


Fig. 28

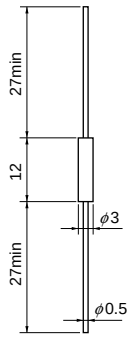


Fig. 29

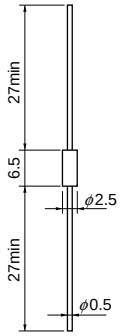


Fig. 30

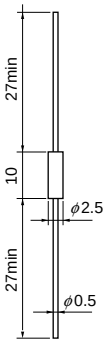


Fig. 31

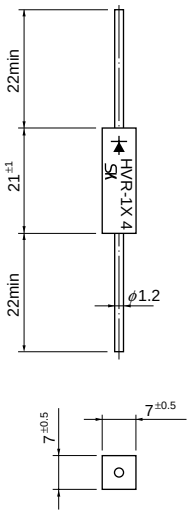
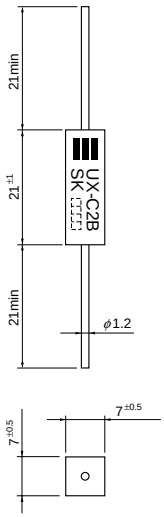


Fig. 32



6 Light Emitting Diodes

6-1. Standard LEDs

● Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA
I_R Condition V_R = 3 V

	Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	I_V (mcd) typ	Condition I_F (mA)	λp (nm) typ	Fig. No.
5ϕ round type	SEL1110R	Diffused red	Red	2.0	2.5	50	3.0	5	700	①
	SEL1110S	Tinted red					5.5			
	SEL1110W	Diffused					3.0			
	SEL1210R	Diffused red		1.9			25.0	20	630	
	SEL1210S	Tinted red					30.0			
	SEL1410G	Diffused green	Green	2.0			20.0		560	
	SEL1410E	Tinted green					40.0			
	SEL1510C	Un-tinted	Pure green				30.0		555	
	SEL1710Y	Diffused yellow	Yellow				3.0	10	570	
	SEL1710K	Tinted yellow					5.0			
	SEL1810D	Diffused orange	Amber	1.9			12.0		610	
	SEL1810A	Tinted orange					25.0			
	SEL1910D	Diffused orange	Orange				3.0		587	
	SEL1910A	Tinted orange					5.5			
4ϕ round type	SEL4110R	Diffused red	Red	2.0	2.5	50	2.0	5	700	②
	SEL4110S	Tinted red					3.0			
	SEL4110W	Diffused					2.0			
	SEL4210R	Diffused red		1.9			15.0	20	630	
	SEL4210S	Tinted red					25.0			
	SEL4410G	Diffused green	Green	2.0			15.0		560	
	SEL4410E	Tinted green					25.0			
	SEL4510C	Un-tinted	Pure green				30.0		555	
	SEL4710Y	Diffused yellow	Yellow				14.0	10	570	
	SEL4710K	Tinted yellow					30.0			
	SEL4810D	Diffused orange	Amber	1.9			10.0		610	
	SEL4810A	Tinted orange					18.0			
	SEL4910D	Diffused orange	Orange				8.0		587	
	SEL4910A	Tinted orange					18.0			

	Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	I_V (mcd) typ	Condition I_F (mA)	λp (nm) typ	Fig. No.
3ϕ round type	SEL2110R	Diffused red	Red	2.0	2.5	50	1.1	10	700	③
	SEL2110S	Tinted red					1.4			
	SEL2110W	Diffused					1.1			
	SEL2210R	Diffused red		1.9			10.0	20	630	
	SEL2210S	Tinted red					20.0			
	SEL2210W	Diffused					10.0			
	SEL2410G	Diffused green	Green	2.0			10.0		560	
	SEL2410E	Tinted green					20.0			
	SEL2510G	Diffused green	Pure green				3.7		555	
	SEL2510C	Un-tinted					25.0			
	SEL2710Y	Diffused yellow	Yellow				4.4	10	570	
	SEL2710K	Tinted yellow					20.0			
	SEL2810D	Diffused orange	Amber	1.9			6.0		610	
	SEL2810A	Tinted orange					10.0			
	SEL2910D	Diffused orange	Orange				1.6		587	
	SEL2910A	Tinted orange					8.0			
	SEL2215R	Diffused red	Red	1.9	2.5	50	25.0	20	630	④
	SEL2215S	Tinted red					30.0			
	SEL2415G	Diffused green	Green	2.0			50.0		560	
	SEL2415E	Tinted green					90.0			
	SEL2715Y	Diffused yellow	Yellow				70.0		570	
	SEL2715K	Tinted yellow					120.0			
	SEL2815D	Diffused orange	Amber	1.9			40.0		610	
	SEL2815A	Tinted orange					70.0			
	SEL2915D	Diffused orange	Orange				50.0		587	
	SEL2915A	Tinted orange					70.0			
Round-type special configuration	SEL1111R	Diffused red	Red	2.0	2.5	50	1.3	10	700	⑤
	SEL1411G	Diffused green	Green				5.0		560	
	SEL1711Y	Diffused yellow	Yellow				8.0		570	
	SEL1811D	Diffused orange	Amber	1.9			5.5		610	
	SEL1911D	Diffused orange	Orange						587	
	SEL2111R	Diffused red	Red	2.0	2.5	50	1.2	10	700	⑥
	SEL2111W	Diffused								
	SEL2411G	Diffused green	Green				3.0		560	
	SEL4117R	Diffused red	Red	2.0	2.5	50	1.0	10	700	⑦
	SEL4417G	Diffused green	Green				10.0	20	560	
	SEL4717Y	Diffused yellow	Yellow				9.5	10	570	
	SEL4817D	Diffused orange	Amber	1.9			4.5		610	
	SEL4917D	Diffused orange	Orange				4.5		587	

6-2. LEDs for Surface Illumination

	Type No.	Type of Lines	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
				V_F (V)		I_R (μA)	I_V (mcd)	Condition I_F (mA)	λp (nm)	
				typ	max	max	typ		typ	
Square display type	SEL1120R	Diffused red	Red	2.0	2.5	50	0.7	10	700	⑧
	SEL1420G	Diffused green	Green				2.0	20	560	
	SEL1720Y	Diffused yellow	Yellow				0.7	10	570	
	SEL1820D	Diffused orange	Amber	1.9			2.0		610	
	SEL1920D	Diffused orange	Orange				0.7		587	
	SEL1121R	Diffused red	Red	2.0	2.5	50	0.7	10	700	⑨
	SEL1421G	Diffused green	Green				2.0	20	560	
	SEL1721Y	Diffused yellow	Yellow				0.7	10	570	
	SEL1821D	Diffused orange	Amber	1.9			1.5		610	
	SEL1921D	Diffused orange	Orange				0.7		587	
	SEL1222R	Diffused red	Red	1.9	2.5	50	5.0	20	630	⑩
	SEL1422G	Diffused green	Green	2.0			4.0	10	560	
	SEL1722Y	Diffused yellow	Yellow				4.0		570	
	SEL1822D	Diffused orange	Amber	1.9			2.5		610	
	SEL1922D	Diffused orange	Orange				3.0		587	
	SEL1124R	Diffused red	Red	2.0	2.5	50	0.7	10	700	⑪
	SEL1424G	Diffused green	Green				2.0	20	560	
	SEL1724Y	Diffused yellow	Yellow				0.7	10	570	
	SEL1824D	Diffused orange	Amber	1.9			2.1		610	
	SEL1924D	Diffused orange	Orange				0.7		587	
	SEL4225R	Diffused red	Red	1.9	2.5	50	5.0	20	630	⑫
	SEL4225C	Un-tinted					10.0			
	SEL4425G	Diffused green	Green	2.0			10.0		560	
	SEL4425E	Tinted green					15.0			
	SEL4725Y	Diffused yellow	Yellow				6.0	10	570	
	SEL4725K	Tinted yellow					10.6			
	SEL4825D	Diffused orange	Amber	1.9			3.0		610	
	SEL4825A	Tinted orange					5.0			
	SEL4925D	Diffused orange	Orange				3.0		587	
	SEL4925A	Tinted orange					5.0			
Bow type	SEL4227C	Un-tinted	Red	1.9	2.5	50	10.0	20	630	⑬
	SEL4427E	Tinted green	Green	2.0			20.0		560	
	SEL4527C	Un-tinted	Pure green				5.0		555	
	SEL4228C	Un-tinted	Red	1.9	2.5	50	18.0	20	630	⑭
	SEL4428E	Tinted green	Green	2.0			40.0		560	
	SEL4528C	Un-tinted	Pure green				15.0		555	
	SEL4728K	Tinted yellow	Yellow				16.0	10	570	
	SEL4828A	Tinted orange	Amber	1.9			9.0		610	
	SEL4928A	Tinted orange	Orange				7.0		587	

● Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA
I_R Condition V_R = 3 V

Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
			V_F (V)		I_R (μA)	I_V (mcd)	Condition I_F (mA)	λp (nm)	
			typ	max	max	typ		typ	
SEL1213C	Un-tinted	Red	1.9	2.5	50	3.5	20	630	⑮
SEL1413E	Tinted green	Green	2.0			8.0		560	
SEL1713K	Tinted yellow	Yellow				8.0		570	
SEL1813A	Tinted orange	Amber	1.9			5.0		610	
SEL1913K	Tinted orange	Orange				5.0		587	
SEL2213C	Un-tinted	Red	1.9	2.5	50	3.0	20	630	⑯
SEL2413E	Tinted green	Green	2.0			7.0		560	
SEL2713K	Tinted yellow	Yellow				17.0		570	
SEL2813A	Tinted orange	Amber	1.9			5.7		610	
SEL2913K	Tinted orange	Orange				6.6		587	

6-3. Ultra-High Intensity LEDs

● Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA
I_R Condition V_R = 3 V

Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
			V_F (V)		I_R (μA)	I_V (mcd)	Condition I_F (mA)	λp (nm)	
			typ	max	max	typ		typ	
SEL1610C	Un-tinted	Red	1.75	2.2	100	800	30	660	①
SEL1615C									⑰
SEL1650CM									⑱

6-4. Contact Mount LEDs for Automatic Insertion

●Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA

I_R Condition V_R = 3 V

	Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	I_V (mcd) typ	Condition I_F (mA)	λp (nm) typ	Fig. No.
5φ Round type	SEL1250SM	Tinted red	Red	1.9	2.5	50	34.0	20	630	⑱
	SEL1450EKM	Tinted green	Green	2.0			95.0		560	
	SEL1550CM	Un-tinted	Pure green				36.0		555	
	SEL1950KM	Tinted yellow	Orange	1.9			64.0		587	
4φ Round type	SEL4114R	Diffused red	Red	2.0	2.5	50	2.0	10	700	⑲
	SEL4114S	Tinted red					3.0			
	SEL4214R	Diffused red		1.9			12.0	20	630	
	SEL4214S	Tinted red					25.0			
	SEL4414G	Diffused green	Green	2.0			24.0		560	
	SEL4414E	Tinted green					30.0			
	SEL4714Y	Diffused yellow	Yellow				13.0	10	570	
	SEL4714K	Tinted yellow					17.0			
	SEL4814D	Diffused orange	Amber	1.9			4.5		610	
	SEL4814A	Tinted orange					7.5			
	SEL4914D	Diffused orange	Orange				5.5		587	
	SEL4914A	Tinted orange					16.0			
Round type	SEL6210R	Diffused red	Red	1.9	2.5	50	12.0	20	630	⑳
	SEL6210S	Tinted red					25.0			
	SEL6410G	Diffused green	Green	2.0			15.0		560	
	SEL6410E	Tinted green					45.0			
	SEL6510G	Diffused green	Pure green				5.0		555	
	SEL6510C	Un-tinted					16.0			
	SEL6710Y	Diffused yellow	Yellow				5.0	10	570	
	SEL6710K	Tinted yellow					15.0			
	SEL6810D	Diffused orange	Amber	1.9			4.0		610	
	SEL6810A	Tinted orange					10.0			
	SEL6910D	Diffused orange	Orange				6.5		587	
	SEL6910A	Tinted orange					14.0			
	SEL6214S	Tinted red	Red	1.9	2.5	50	10.0	20	630	㉑
	SEL6414E	Tinted green	Green	2.0			12.0		560	
	SEL6514C	Un-tinted	Pure green				6.0		555	
	SEL6814A	Tinted orange	Amber	1.9			5.0	10	610	
	SEL6914A	Tinted orange	Orange				5.0		587	

	Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	I_V (mcd) typ	Condition I_F (mA)	λp (nm) typ	Fig. No.
Round type	SEL6215S	Tinted red	Red	1.9	2.5	50	30.0	20	630	㉒
	SEL6415E	Tinted green	Green	2.0			50.0		560	
	SEL6515C	Un-tinted	Pure green				18.0		555	
	SEL6815A	Tinted orange	Amber	1.9			30.0		610	
	SEL6915A	Tinted orange	Orange				40.0		587	
Bow type	SEL4229R	Diffused red	Red	1.9	2.5	50	10.0	20	630	㉓
	SEL4429E	Tinted green	Green	2.5			28.0		560	
	SEL4829A	Tinted orange	Amber	1.9			8.0	10	610	
	SEL6427EP	Tinted green	Green	2.0	2.5	50	20.0	20	560	㉔
Square display type	SEL4226R	Diffused red	Red	1.9	2.5	50	5.0	20	630	㉕
	SEL4226C	Un-tinted					10.0			
	SEL4426G	Diffused green	Green	2.0			10.0		560	
	SEL4426E	Tinted green					15.0			
	SEL4726Y	Diffused yellow	Yellow				6.0	10	570	
	SEL4726K	Tinted orange					10.6			
	SEL4826D	Diffused orange	Amber	1.9			3.0		610	
	SEL4826A	Tinted yellow					5.0			
	SEL4926D	Diffused orange	Orange				3.0		587	
	SEL4926A	Tinted orange					5.0			
5mm pitch lead type	SEL5220S	Tinted red	Red	1.9	2.5	50	2.8	20	630	㉖
	SEL5420E	Tinted green	Green	2.0			6.8		560	
	SEL5520C	Un-tinted	Pure green				2.4		555	
	SEL5820A	Tinted orange	Amber	1.9			6.0		610	
	SEL5920A	Tinted orange	Orange				4.4		587	
	SEL5221S	Tinted red	Red	1.9	2.5	50	14.0	20	630	㉗
	SEL5421E	Tinted green	Green	2.0			36.0		560	
	SEL5521C	Un-tinted	Pure green				14.0		555	
	SEL5821A	Tinted orange	Amber	1.9			22.0		610	
	SEL5921A	Tinted orange	Orange				22.0		587	
	SEL5223S	Tinted red	Red	1.9	2.5	50	6.0	20	630	㉘
	SEL5423E	Tinted green	Green	2.0			14.0		560	
	SEL5823A	Tinted orange	Amber	1.9			9.0		610	
	SEL5923A	Tinted orange	Orange				9.0		587	

6-5. Bicolor LEDs

●Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
PD	mW	75
I_F	mA	30
I_{FP}	mA	100
V_R	V	4
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA

I_R Condition V_R = 4 V

Type No.		Emitting Color	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	I_V (mcd) typ	Condition I_F (mA)	λp (nm) typ	Fig. No.
SML1016 series	SML1216W	High intensity red	1.9	2.5	10	40	20	630	㉙
		Green	2.0					560	
	SML1816W	Amber	1.9			40		610	
		Green	2.0					560	
	SML19416W	Orange	1.9			40		587	
		Green	2.0					560	
SML10060 series	SML12460C	High intensity red	1.9	2.5	10	10	20	630	㉚
		Green	2.0			20		560	
	SML19460C	Orange	1.9			10		587	
		Green	2.0			20		560	
SML10051 series	SML12451W	High intensity red	1.9	2.5	10	40	20	630	㉛
		Green	2.0					560	
	SML18451W	Amber	1.9			40		610	
		Green	2.0					560	
Anode common series	SML16760CN	UltraHigh intensity red	1.7	2.2	10	20	20	660	㉚
		Yellow green	2.4	3.0				570	
	SML16751WN	UltraHigh intensity red	1.7	2.2		50		660	㉛
		Yellow green	2.4	3.0		40		570	
Contact mount SML70020 series	SML72420C	High intensity red	1.9	2.5	10	10	20	630	㉜
		Green	2.0			20		560	
	SML78420C	Amber	1.9			10		610	
		Green	2.0			20		560	
	SML79420C	Orange	1.9			10		587	
		Green	2.0			20		560	
Contact mount SML70023 series	SML72423C	High intensity red	1.9	2.5	10	10	20	630	㉝
		Green	2.0			20		560	
	SML78423C	Amber	1.9			10		610	
		Green	2.0			20		560	
	SML79423C	Orange	1.9			10		587	
		Green	2.0			20		560	

6-6. Infrared LEDs

●Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
P_D	mW	150
I_F	mA	100
ΔI_F	mA/°C	–1.33 (more than 25 °C)
I_{FP}	mA	1000 (f = 1 kHz, $T_W \leq 10$ μs)
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 50 mA

I_R Condition V_R = 5 V

Ie Condition (Constant voltage) Vcc = 3 V, R = 2.2 Ω

Type No.	Electro-Optical Characteristics (Ta = 25°C) V_F (V) typ	V_F (V) max	I_R (μA) max	Ie (mW/sr) min	λp (nm) typ	Fig. No.
SID1010CXM	1.25	1.5	10	40	940	㉞
SID1010CM				85		㉟
SID1K10CXM	1.20	1.5	10	75	940	㉞
SID1K10CM				140		㉟
SID303C	1.25	1.4	10	100	940	㊱
SID303BR						
SID303BS						
SID307BR				220		
SID313BP				210		
SID1003BQ		1.45		170		

6-7. Chip LEDs

●Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	70
V_R	V	4
Top	°C	–30 to +85
Tstg	°C	–30 to +90

V_F Condition I_F = 10 mA
I_R Condition V_R = 4 V

	Type No.	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
			V_F (V)		I_R (μA)	I_V (mcd)	Condition I_F (mA)	λp (nm)	
			typ	max	max	typ			
Flat type	SEC1101C	Red	2.0	2.5	100	1.2	20	700	㊲
	SEC1201C	High intensity red	1.9			7.0		630	
	SEC1601C	Ultra-High intensity red	1.7	2.2		60.0		660	
	SEC1401C	Green	2.0	2.5		15.0		560	
	SEC1501C	Pure green				6.5		555	
	SEC1801C	Amber	1.9	2.5		14.5		610	
	SEC1901C	Orange				10.0		587	
	SEC2422C	① Green	2.0	2.5	100	15.0	20	560	㊳
		② High intensity red	1.9			9.0		630	
	SEC2462C	① Green	2.0			15.0		560	
		② Ultra-High intensity red	1.7	2.2		14.0		660	
Inner lens type	SEC1203C	High intensity red	1.9	2.5	100	18.0	20	630	㊴
	SEC1403C	Green	2.0			20.0		560	
	SEC1603C	Ultra-High intensity red	1.7	2.2		120.0		660	
	SEC1703C	High intensity yellow green	2.0	2.5		30.0		570	
	SEC2424C	① Green	2.0	2.5	100	20.0	20	560	㊵
		② High intensity red	1.9			20.0		630	
	SEC2464C	① Green	2.0			20.0		560	
		② Ultra-High intensity red	1.7	2.2		30.0		660	
	SEC2764C	① High intensity yellow green	2.0	2.5		30.0		570	
		② Ultra-High intensity red	1.7	2.2		30.0		660	

6-8. AlGaInP Ultra-High Intensity LEDs

●Absolute Maximum Ratings (Ta = 25°C)

Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 10 mA
I_R Condition V_R = 3 V

Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
			V_F (V)		I_R (μA)	I_V (mcd)	Condition I_F (mA)	λp (nm)	
			typ	max	max	typ		typ	
SELU1250CM	Un-tinted	Red	2.0	2.5	100	600	20	635	⑱
SELU1210CXM						400			㉞
SELU1253CM						300			㉟
SELU1750CM		Yellow green	2.0	2.5	100	500	20	570	⑱
SELU1710CXM						300			㉞
SELU1753CM						200			㉟
SELU1850CM		Amber	2.0	2.5	100	1000	20	615	⑱
SELU1810CXM						700			㉞
SELU1853CM						500			㉟
SELU1950CM		Orange	2.0	2.5	100	900	20	590	⑱
SELU1910CXM						600			㉞
SELU1953CM						400			㉟

6-9. Blue LEDs

●Absolute Maximum Ratings (Ta = 25°C)

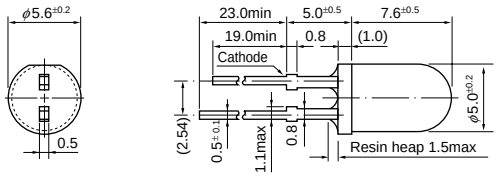
Parameter	Unit	Ratings
I_F	mA	30
I_{FP}	mA	100
V_R	V	3
Top	°C	–30 to +85
Tstg	°C	–30 to +100

V_F Condition I_F = 20 mA
I_R Condition V_R = 3 V

Type No.	Type of Lens	Emitting Color	Electro-Optical Characteristics (Ta = 25°C)						Fig. No.
			V_F (V)		I_R (μA)	Iv (mcd)	Condition I_F (mA)	λp (nm)	
			typ	max	max	typ		typ	
SELU1E53BMKT	Tinted blue	Blue	3.5	4.0	50	600	20	470	㊶

● External Dimensions (unit : mm)

Fig. 1



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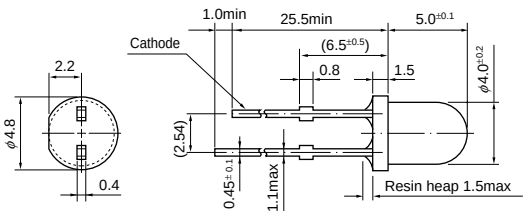

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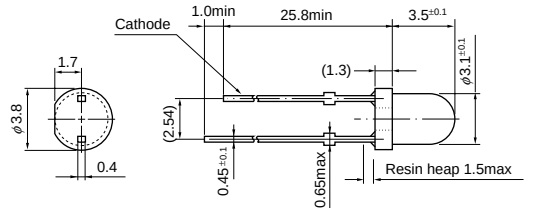

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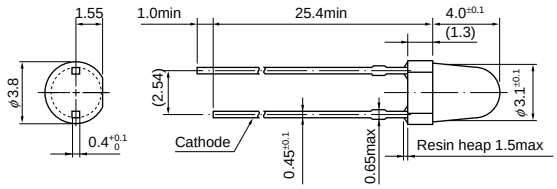

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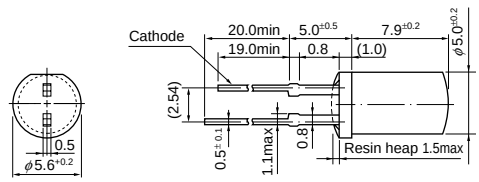

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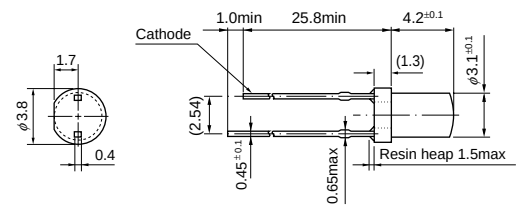

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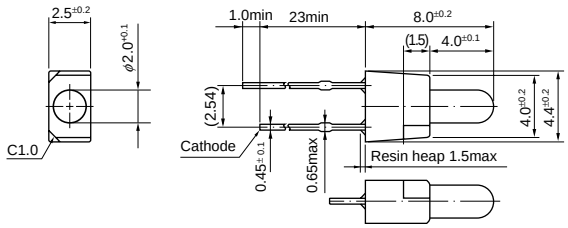

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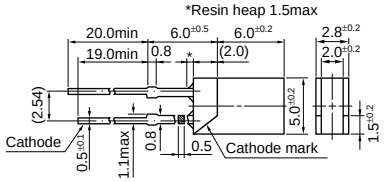

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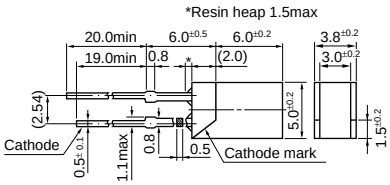

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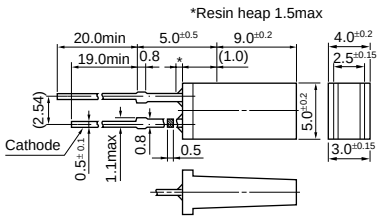

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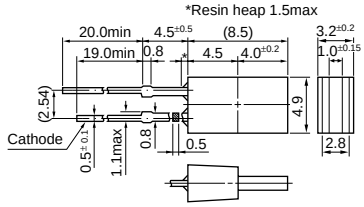

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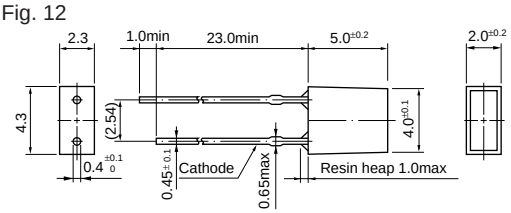

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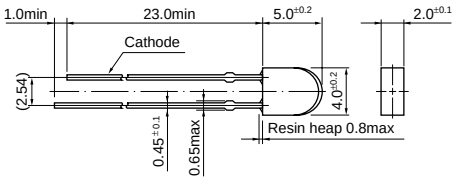

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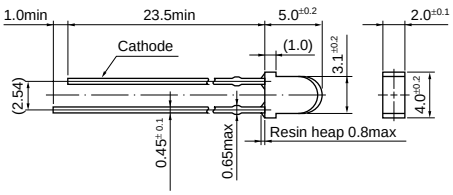

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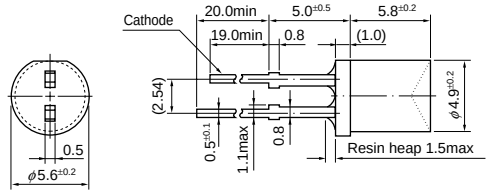

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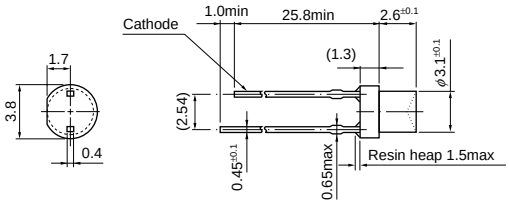

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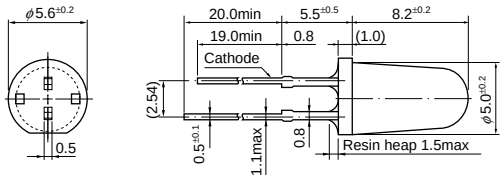

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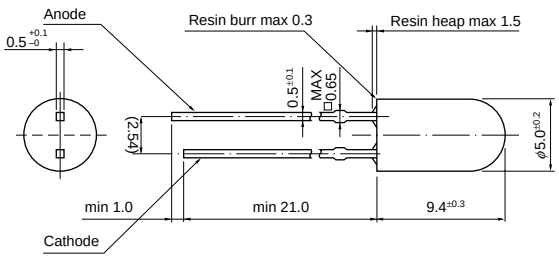

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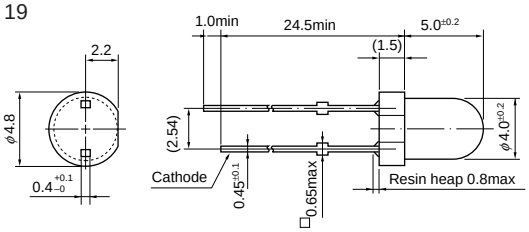

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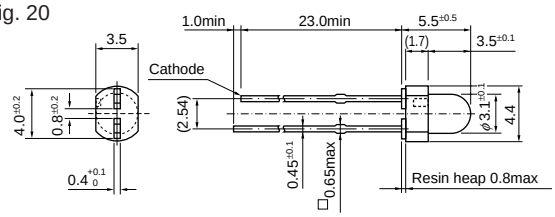

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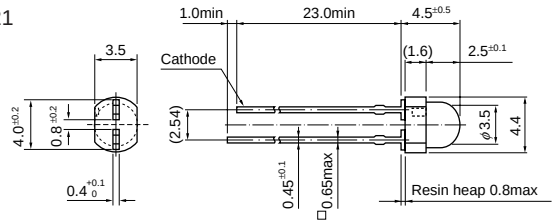

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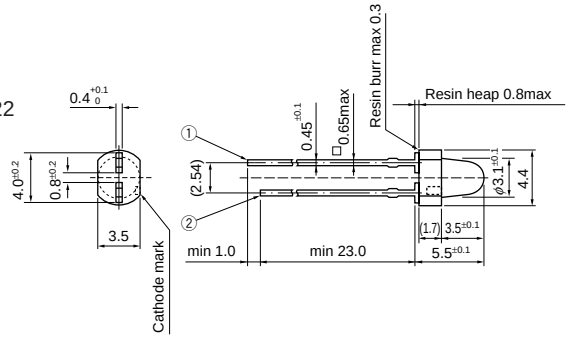

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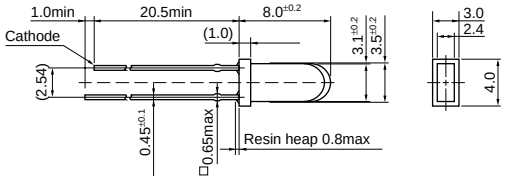

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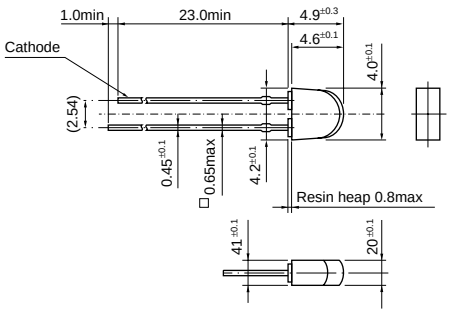

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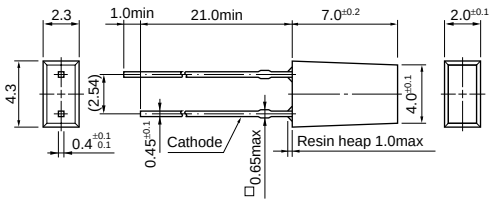

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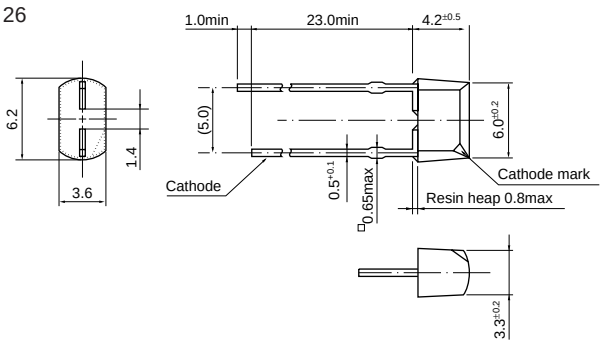

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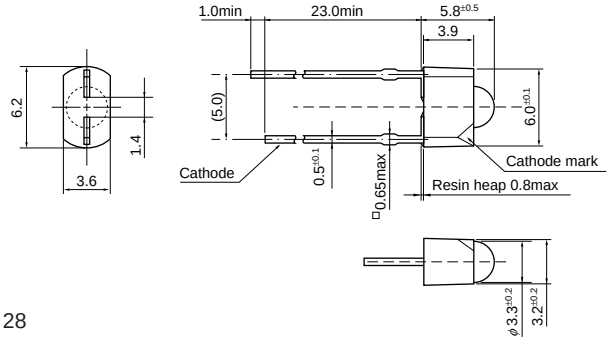

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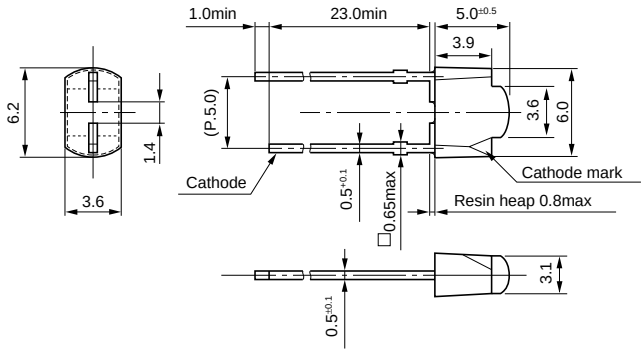

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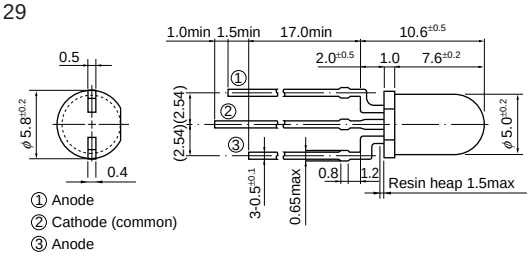

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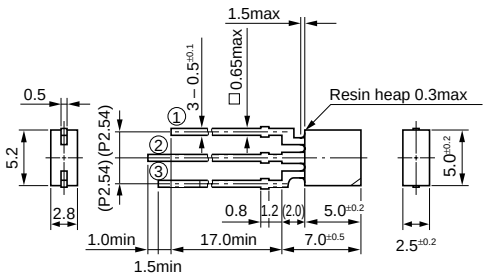

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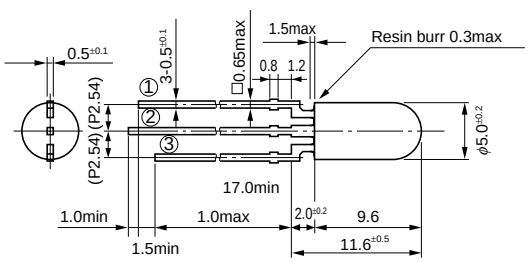

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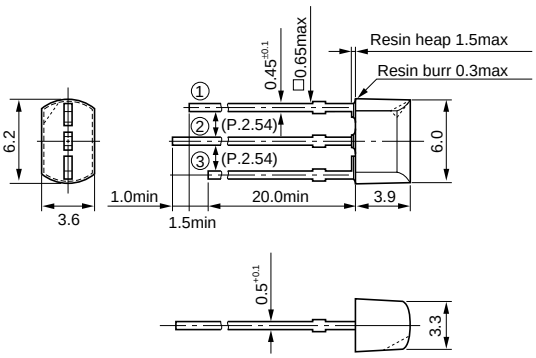

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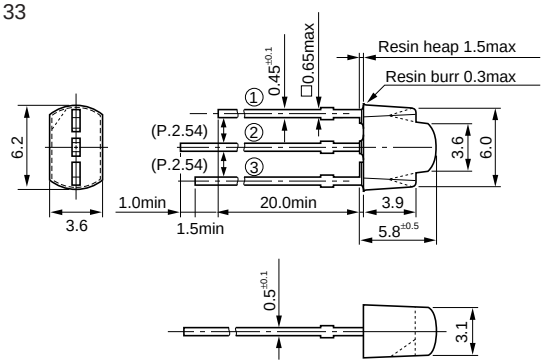
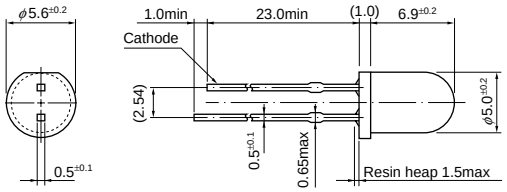


Fig. 34



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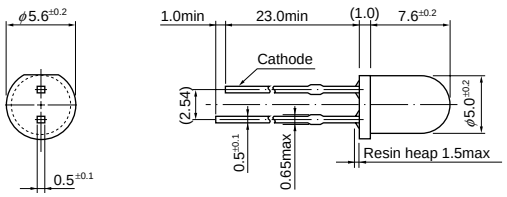

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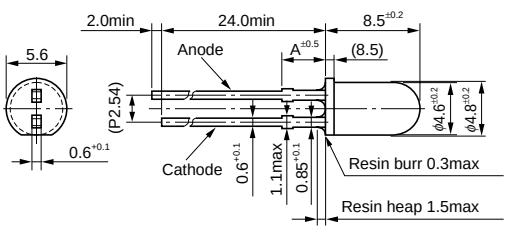

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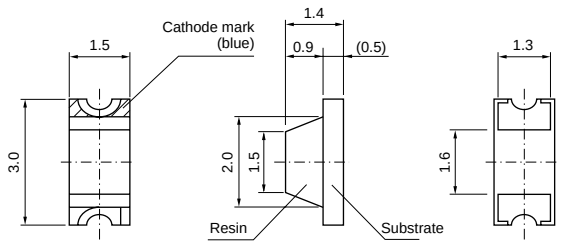

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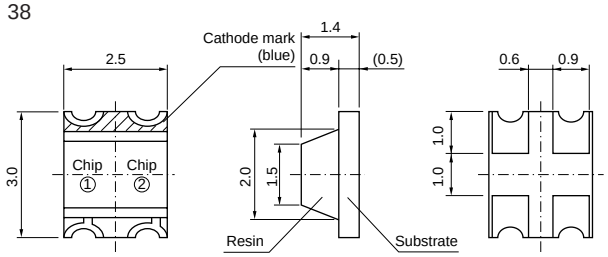

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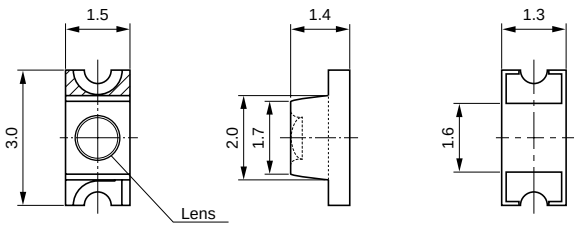
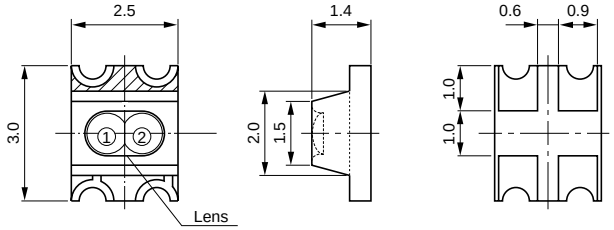


Fig. 40



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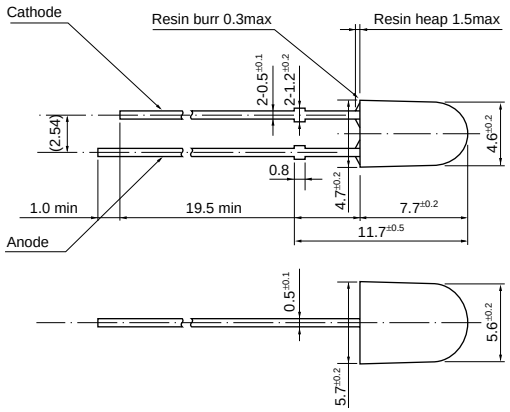

Index (Type No. Order)

Index (Type No. Order)

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Memo

Memo

Memo