

Features

- Glass passivated chip
- 200W peak pulse power(10/1000us)
- High accuracy, 5% tolerance
- Uni and Bidirectional unit
- Low clamping voltage
- Low Leakage current
- Very fast response time
- Meet MSL level1, per J-STD-020,
LF maximum peak of 260°C
- JESD22-A114-B ESD Voltage: HBM 15KV
- ESD Voltage :MM 0.4KV
- ESD Voltage :CDM 0.5KV
- ESD-immunity acc. IEC 61000-4-2 ±30KV contact
±30KV air

Bidirectional



Unidirectional



Applications

- Computers
- Telecom system
- Industrial equipments
- Consumer electronic applications
- Other VCC bus and I/O interfaces

Mechanical Data

- **Case:** SOD-123FL (plastic package). RoHS compliant
- **Molding Compound Flammability Rating:** UL 94 V-0
- **Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000us waveform ⁽¹⁾	P_{PP}	200	W
Maximum peak reverse pulse current a 10/1000us waveform ⁽¹⁾	I_{PP}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave ⁽²⁾	I_{FSM}	20	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig.5 and detated above $T_A=25^{\circ}\text{C}$ per Fig.1
2. Measured on 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minute maximum

Electrical Characteristics

$T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Device type	Device marking code	Direction	Breakdown voltage $V_{BR}(1)$ (Volts)		Test current at I_T (mA)	Stand-off voltage V_{WM} (Volts)	Maximum reverse leakage at V_{WM} $I_{RWM}(3)$ (uA)	Maximum peak pulse surge current $I_{PPM}(2)$ (A)	Maximum clamping voltage at I_{PPM} V_C (Volts)
			Min.	Max.					
SODJ5.0A	AE	Uni-Dir	6.40	7.07	10	5.0	400	21.74	9.2
SODJ5.0CA	WE	Bi-Dir	6.40	7.07	10	5.0	800	21.74	9.2
SODJ6.0A	AG	Uni-Dir	6.67	7.37	10	6.0	400	19.42	10.3
SODJ6.0CA	WG	Bi-Dir	6.67	7.37	10	6.0	800	19.42	10.3
SODJ6.5A	AK	Uni-Dir	7.22	7.98	10	6.5	250	17.86	11.2
SODJ6.5CA	WK	Bi-Dir	7.22	7.98	10	6.5	500	17.86	11.2
SODJ7.0A	AM	Uni-Dir	7.78	8.60	10	7.0	100	16.67	12.0
SODJ7.0CA	WM	Bi-Dir	7.78	8.60	10	7.0	200	16.67	12.0
SODJ7.5A	AP	Uni-Dir	8.33	9.21	1.0	7.5	50	15.51	12.9
SODJ7.5CA	WP	Bi-Dir	8.33	9.21	1.0	7.5	50	15.51	12.9
SODJ8.0A	AR	Uni-Dir	8.89	9.83	1.0	8.0	25	14.71	13.6
SODJ8.0CA	WR	Bi-Dir	8.89	9.83	1.0	8.0	25	14.71	13.6
SODJ8.5A	AT	Uni-Dir	9.44	10.4	1.0	8.5	10	13.89	14.4
SODJ8.5CA	WT	Bi-Dir	9.44	10.4	1.0	8.5	10	13.89	14.4
SODJ9.0A	AV	Uni-Dir	10.0	11.1	1.0	9.0	5.0	12.99	15.4
SODJ9.0CA	WV	Bi-Dir	10.0	11.1	1.0	9.0	5.0	12.99	15.4
SODJ10A	AX	Uni-Dir	11.1	12.3	1.0	10	1.0	11.77	17.0
SODJ10CA	WX	Bi-Dir	11.1	12.3	1.0	10	1.0	11.77	17.0
SODJ11A	AZ	Uni-Dir	12.2	13.5	1.0	11	1.0	10.99	18.2
SODJ11CA	WZ	Bi-Dir	12.2	13.5	1.0	11	1.0	10.99	18.2
SODJ12A	BE	Uni-Dir	13.3	14.7	1.0	12	1.0	10.05	19.9
SODJ12CA	XE	Bi-Dir	13.3	14.7	1.0	12	1.0	10.05	19.9
SODJ13A	BG	Uni-Dir	14.4	15.9	1.0	13	1.0	9.30	21.5
SODJ13CA	XG	Bi-Dir	14.4	15.9	1.0	13	1.0	9.30	21.5
SODJ14A	BK	Uni-Dir	15.6	17.2	1.0	14	1.0	8.62	23.2
SODJ14CA	XK	Bi-Dir	15.6	17.2	1.0	14	1.0	8.62	23.2
SODJ15A	BM	Uni-Dir	16.7	18.5	1.0	15	1.0	8.20	24.4
SODJ15CA	XM	Bi-Dir	16.7	18.5	1.0	15	1.0	8.20	24.4
SODJ16A	BP	Uni-Dir	17.8	19.7	1.0	16	1.0	7.69	26.0
SODJ16CA	XP	Bi-Dir	17.8	19.7	1.0	16	1.0	7.69	26.0
SODJ17A	BR	Uni-Dir	18.9	20.9	1.0	17	1.0	7.25	27.6
SODJ17CA	XR	Bi-Dir	18.9	20.9	1.0	17	1.0	7.25	27.6
SODJ18A	BT	Uni-Dir	20.0	22.1	1.0	18	1.0	6.85	29.2
SODJ18CA	XT	Bi-Dir	20.0	22.1	1.0	18	1.0	6.85	29.2
SODJ20A	BV	Uni-Dir	22.2	24.5	1.0	20	1.0	6.18	32.4
SODJ20CA	XV	Bi-Dir	22.2	24.5	1.0	20	1.0	6.18	32.4
SODJ22A	BX	Uni-Dir	24.4	26.9	1.0	22	1.0	5.64	35.5
SODJ22CA	XX	Bi-Dir	24.4	26.9	1.0	22	1.0	5.64	35.5
SODJ24A	BZ	Uni-Dir	26.7	29.5	1.0	24	1.0	5.14	38.9

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Device type	Device marking code	Direction	Breakdown voltage V _(BR) (Volts)		Test current at I _T (mA)	Stand-off voltage V _{WM} (Volts)	Maximum reverse leakage at V _{WM} I _R ⁽³⁾ (uA)	Maximum peak pulse surge current I _{PPM} ⁽²⁾ (A)	Maximum clamping voltage at I _{PPM} V _C (Volts)
			Min.	Max.					
SODJ24CA	XZ	Bi-Dir	26.7	29.5	1.0	24	1.0	5.14	38.9
SODJ26A	CE	Uni-Dir	28.9	31.9	1.0	26	1.0	4.75	42.1
SODJ26CA	YE	Bi-Dir	28.9	31.9	1.0	26	1.0	4.75	42.1
SODJ28A	CG	Uni-Dir	31.1	34.4	1.0	28	1.0	4.41	45.4
SODJ28CA	YG	Bi-Dir	31.1	34.4	1.0	28	1.0	4.41	45.4
SODJ30A	CK	Uni-Dir	33.3	36.8	1.0	30	1.0	4.13	48.4
SODJ30CA	YK	Bi-Dir	33.3	36.8	1.0	30	1.0	4.13	48.4
SODJ33A	CM	Uni-Dir	36.7	40.6	1.0	33	1.0	3.75	53.3
SODJ33CA	YM	Bi-Dir	36.7	40.6	1.0	33	1.0	3.75	53.3
SODJ36A	CP	Uni-Dir	40.0	44.2	1.0	36	1.0	3.44	58.1
SODJ36CA	YP	Bi-Dir	40.0	44.2	1.0	36	1.0	3.44	58.1
SODJ40A	CR	Uni-Dir	44.4	49.1	1.0	40	1.0	3.10	64.5
SODJ40CA	YR	Bi-Dir	44.4	49.1	1.0	40	1.0	3.10	64.5
SODJ43A	CT	Uni-Dir	47.8	52.8	1.0	43	1.0	2.88	69.4
SODJ43CA	YT	Bi-Dir	47.8	52.8	1.0	43	1.0	2.88	69.4
SODJ45A	CV	Uni-Dir	50.0	55.3	1.0	45	1.0	2.75	72.7
SODJ45CA	YV	Bi-Dir	50.0	55.3	1.0	45	1.0	2.75	72.7
SODJ48A	CX	Uni-Dir	53.3	58.9	1.0	48	1.0	2.59	77.4
SODJ48CA	YX	Bi-Dir	53.3	58.9	1.0	48	1.0	2.59	77.4
SODJ51A	CZ	Uni-Dir	56.7	62.7	1.0	51	1.0	2.43	82.4
SODJ51CA	YZ	Bi-Dir	56.7	62.7	1.0	51	1.0	2.43	82.4
SODJ54A	RE	Uni-Dir	60.0	66.3	1.0	54	1.0	2.30	87.1
SODJ54CA	ZE	Bi-Dir	60.0	66.3	1.0	54	1.0	2.30	87.1
SODJ58A	RG	Uni-Dir	64.4	71.2	1.0	58	1.0	2.14	93.6
SODJ58CA	ZG	Bi-Dir	64.4	71.2	1.0	58	1.0	2.14	93.6
SODJ60A	RK	Uni-Dir	66.7	73.7	1.0	60	1.0	2.07	96.8
SODJ60CA	ZK	Bi-Dir	66.7	73.7	1.0	60	1.0	2.07	96.8
SODJ64A	RM	Uni-Dir	71.1	78.6	1.0	64	1.0	1.94	103
SODJ64CA	ZM	Bi-Dir	71.1	78.6	1.0	64	1.0	1.94	103
SODJ70A	RP	Uni-Dir	77.8	86.0	1.0	70	1.0	1.77	113
SODJ70CA	ZP	Bi-Dir	77.8	86.0	1.0	70	1.0	1.77	113
SODJ75A	RR	Uni-Dir	83.3	92.1	1.0	75	1.0	1.66	121
SODJ75CA	ZR	Bi-Dir	83.3	92.1	1.0	75	1.0	1.66	121
SODJ78A	RT	Uni-Dir	86.7	95.8	1.0	78	1.0	1.59	126
SODJ78CA	ZT	Bi-Dir	86.7	95.8	1.0	78	1.0	1.59	126
SODJ85A	RV	Uni-Dir	94.4	104	1.0	85	1.0	1.46	137
SODJ85CA	ZV	Bi-Dir	94.4	104	1.0	85	1.0	1.46	137
SODJ90A	RX	Uni-Dir	100	111	1.0	90	1.0	1.37	146
SODJ90CA	ZX	Bi-Dir	100	111	1.0	90	1.0	1.37	146

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Device type	Device marking code	Direction	Breakdown voltage V _(BR) (Volts) ⁽¹⁾		Test current at I _T (mA)	Stand-off voltage V _{WM} (Volts)	Maximum reverse leakage at V _{WM} I _D ⁽³⁾ (uA)	Maximum peak pulse surge current I _{PPM} ⁽²⁾ (A)	Maximum clamping voltage at I _{PPM} V _C (Volts)
			Min.	Max.					
SODJ100A	RZ	Uni-Dir	111	123	1.0	100	1.0	1.24	162
SODJ100CA	ZZ	Bi-Dir	111	123	1.0	100	1.0	1.24	162
SODJ110A	SE	Uni-Dir	122	135	1.0	110	1.0	1.13	177
SODJ110CA	VE	Bi-Dir	122	135	1.0	110	1.0	1.13	177
SODJ120A	SG	Uni-Dir	133	147	1.0	120	1.0	1.04	193
SODJ120CA	VG	Bi-Dir	133	147	1.0	120	1.0	1.04	193
SODJ130A	SK	Uni-Dir	144	159	1.0	130	1.0	0.96	209
SODJ130CA	VK	Bi-Dir	144	159	1.0	130	1.0	0.96	209
SODJ150A	SM	Uni-Dir	167	185	1.0	150	1.0	0.83	243
SODJ150CA	VM	Bi-Dir	167	185	1.0	150	1.0	0.83	243
SODJ160A	SP	Uni-Dir	178	197	1.0	160	1.0	0.77	259
SODJ160CA	VP	Bi-Dir	178	197	1.0	160	1.0	0.77	259
SODJ170A	SR	Uni-Dir	189	209	1.0	170	1.0	0.73	275
SODJ170CA	VR	Bi-Dir	189	209	1.0	170	1.0	0.73	275
SODJ180A	ST	Uni-Dir	201	222	1.0	180	1.0	0.68	292
SODJ180CA	VT	Bi-Dir	201	222	1.0	180	1.0	0.68	292
SODJ200A	SV	Uni-Dir	224	247	1.0	200	1.0	0.62	324
SODJ200CA	VV	Bi-Dir	224	247	1.0	200	1.0	0.62	324

Typical Characteristics

($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Fig.1 Forward Current Derating Curve

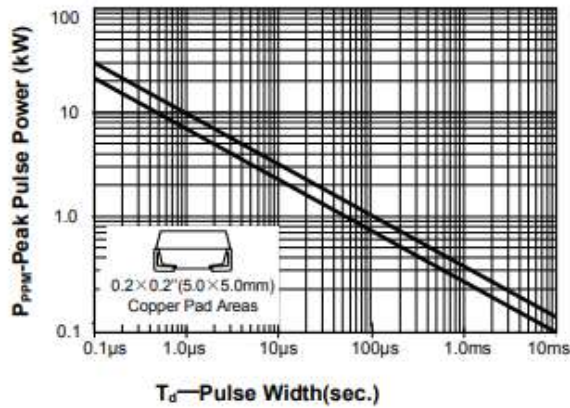


Fig.2 Pulse Derating Curve

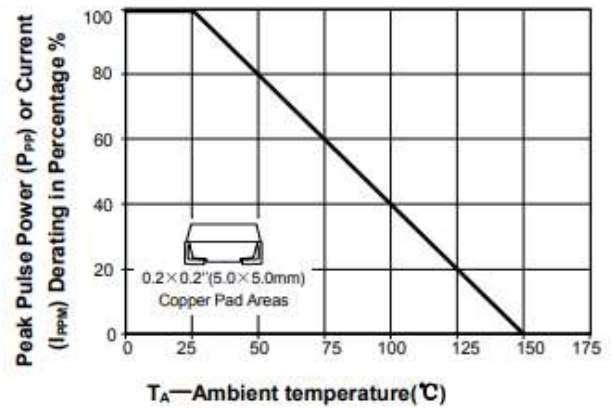


Fig.3 Typical Forward Characteristics

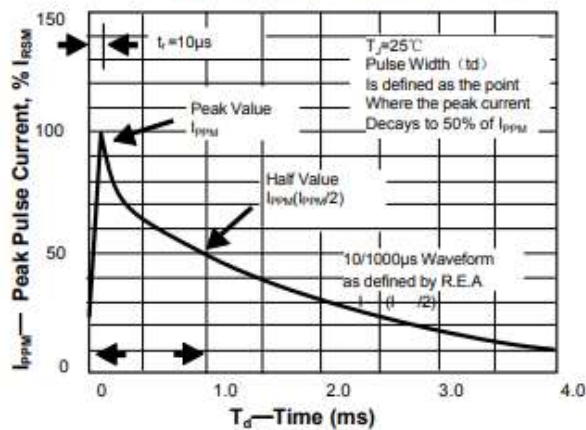


Fig.4 Typical Junction Capacitance

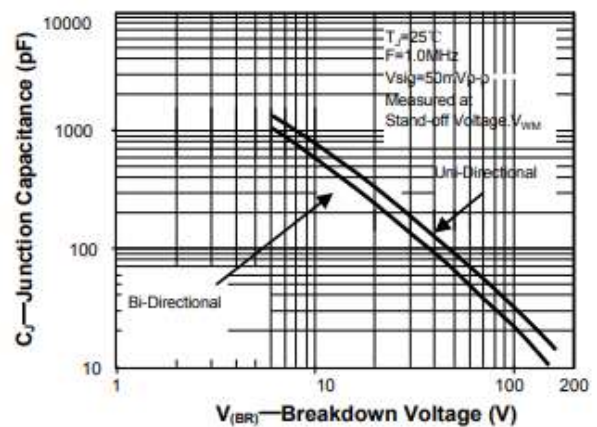


Fig.5 Typical Forward Characteristics

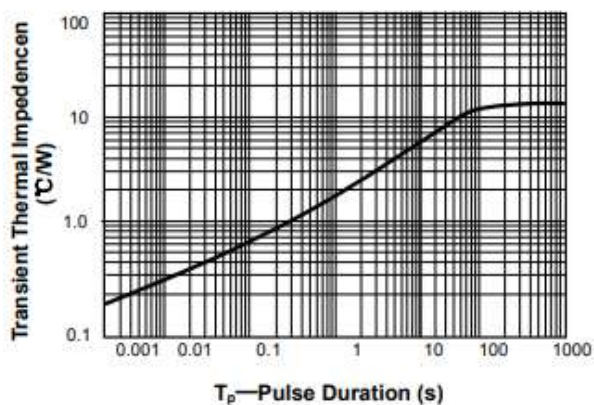
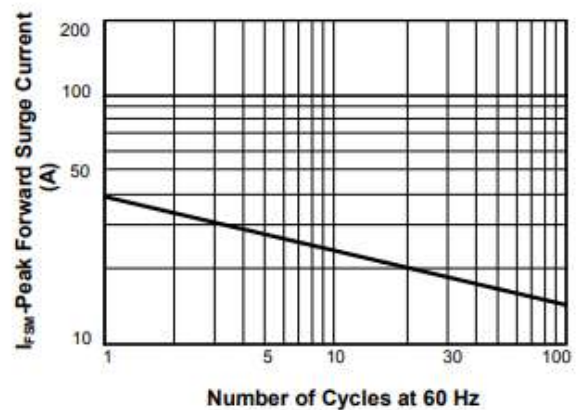
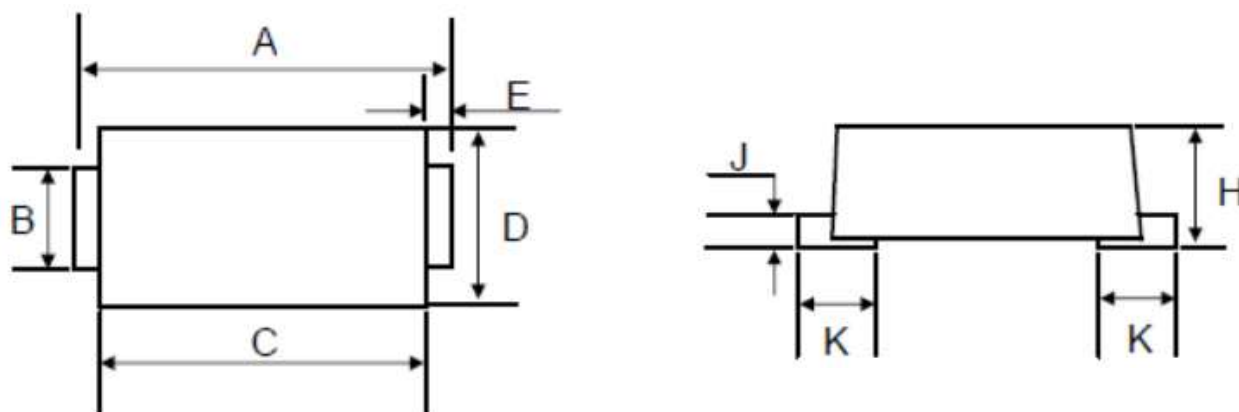


Fig.6 Typical Forward Characteristics

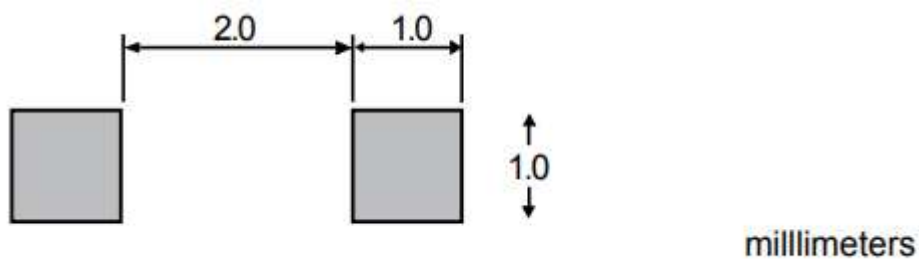


Package Dimensions



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.5	3.9	0.138	0.159
B	0.9	1.1	0.035	0.043
C	2.6	3.0	0.103	0.119
D	1.6	2.0	0.063	0.079
E	0.45Typ		0.018Typ	
H	0.9	1.4	0.036	0.055
J	0.12	0.22	0.005	0.009
K	0.8Typ		0.032Typ	

Pad Dimensions



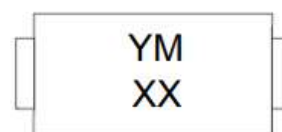
Marking

Uni-directional



Cathode Band

Bi-directional

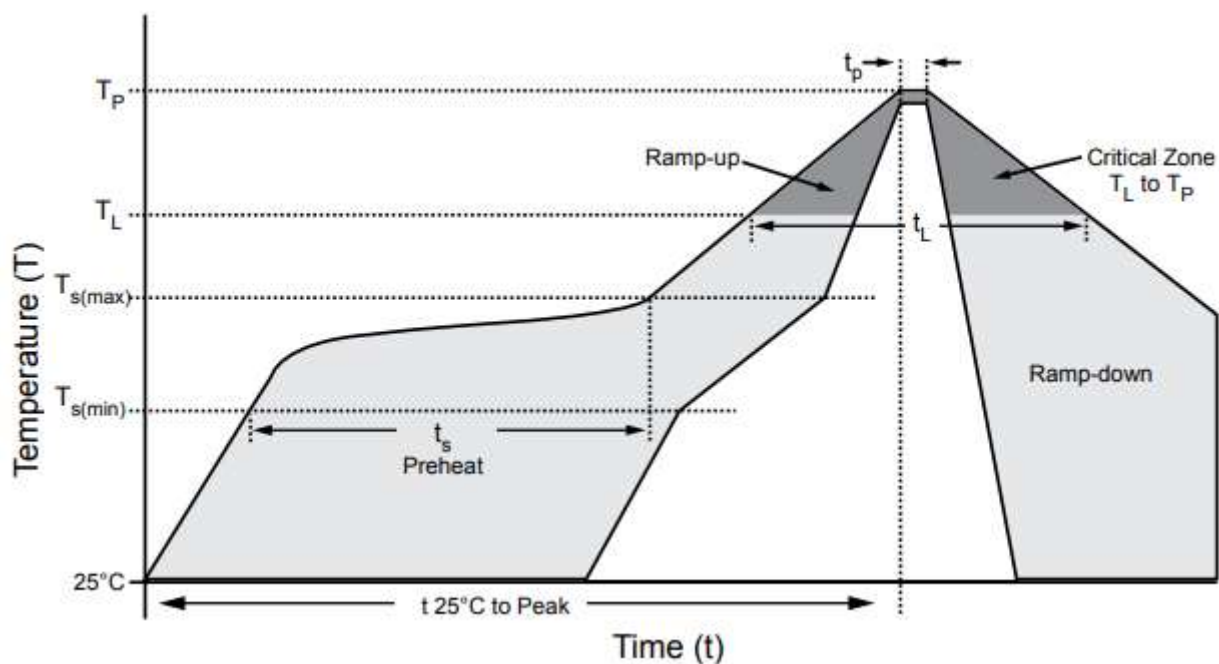


YM:Y-Year Code ;M-Month Code
XX:Device Code

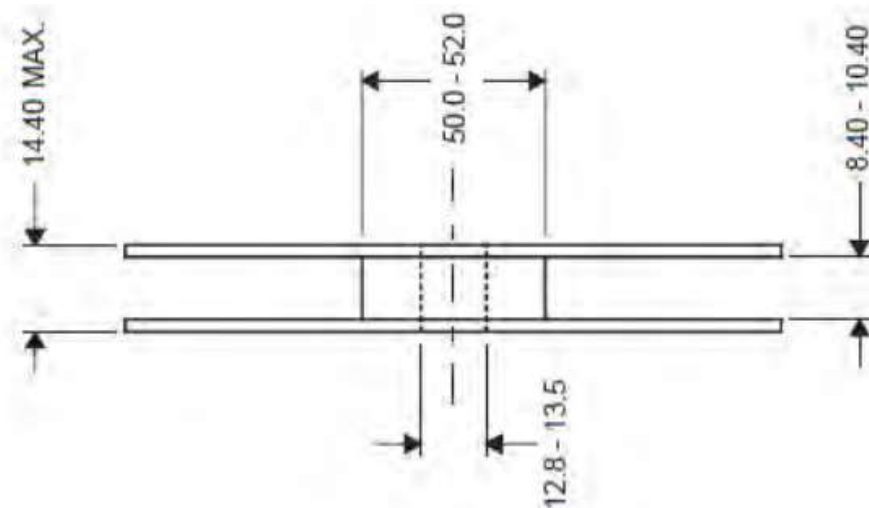
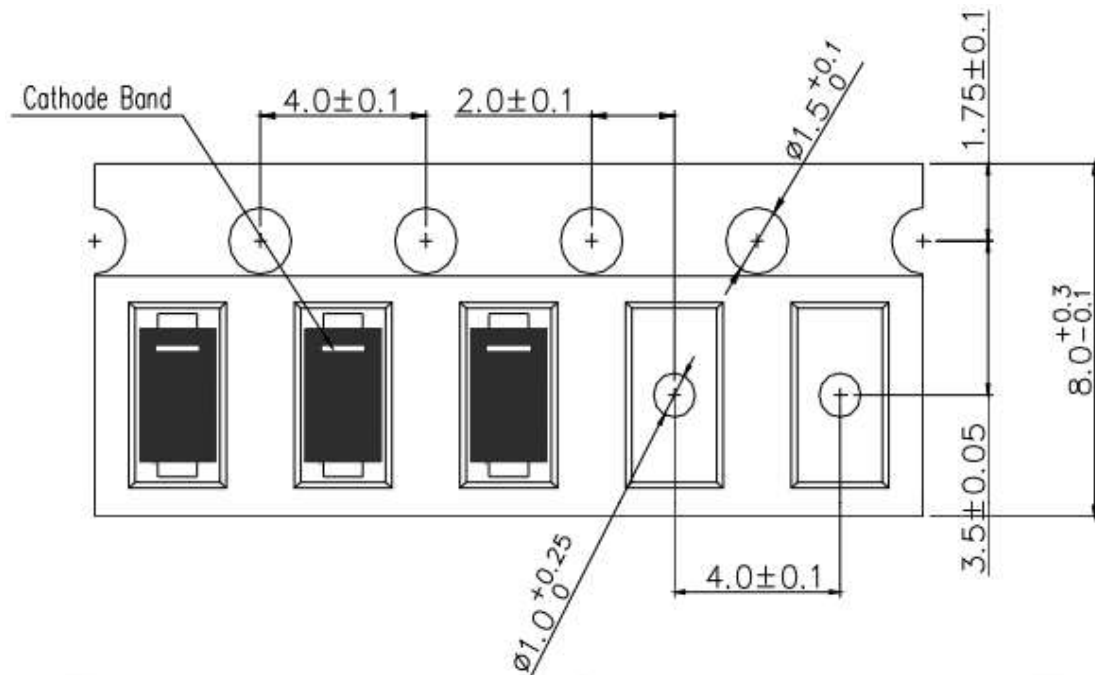
Suggested thermal profile for soldering process

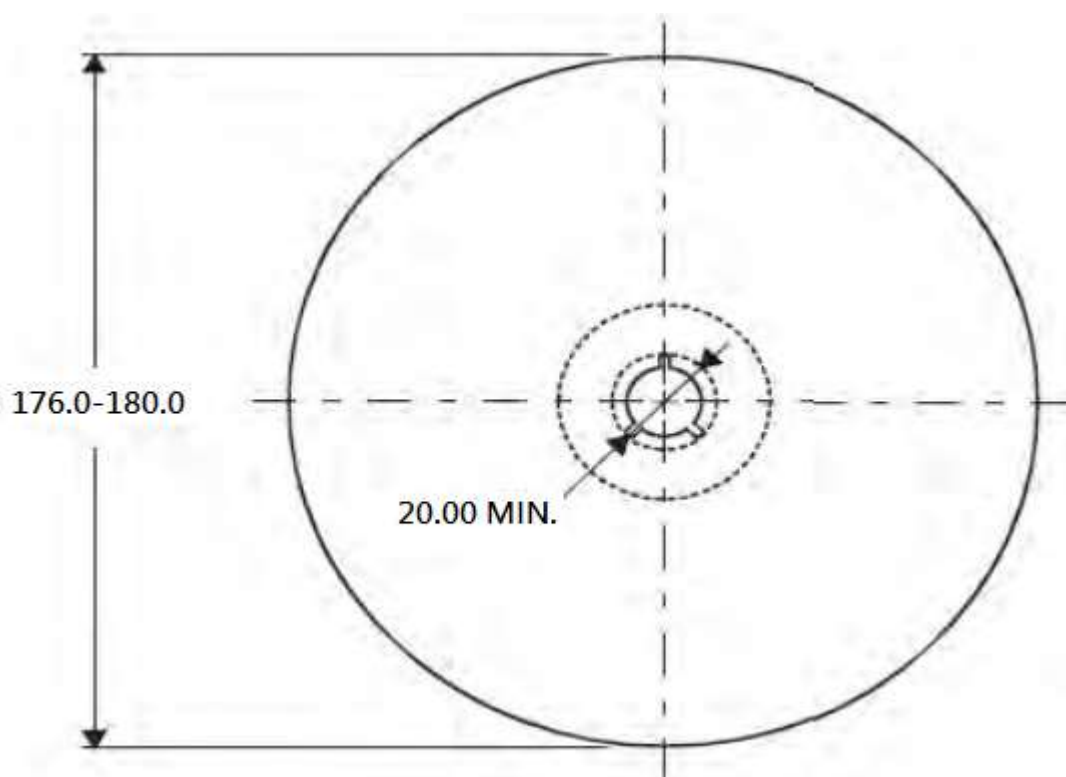
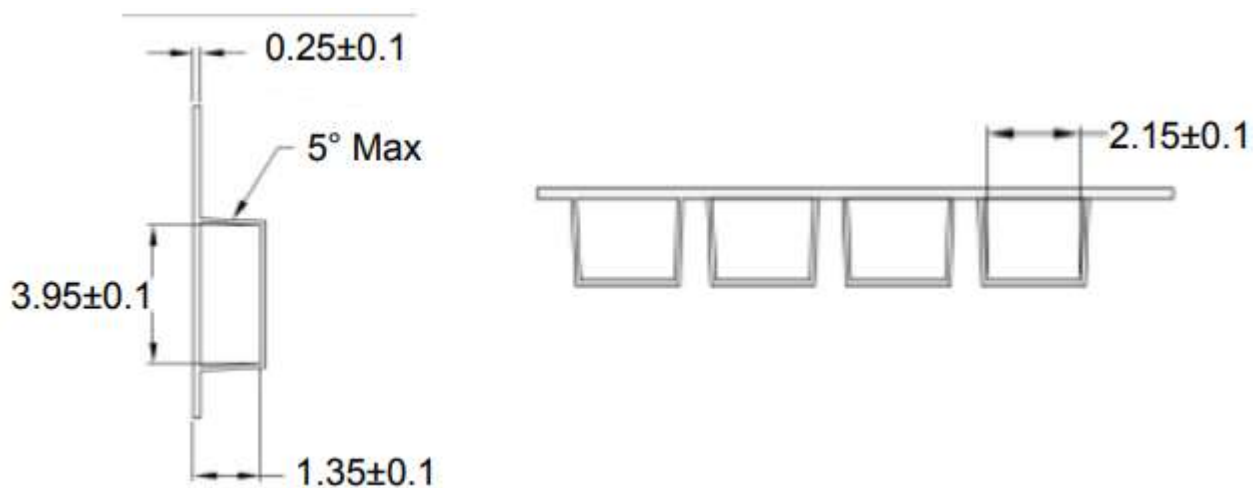
1. Storage environment : Temperature=5~40°C Humidity=55±25%
2. Reflow soldering of surface-mount device
3. Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat - Temperature Min(T_{smin}) - Temperature Max(T_{smax}) - Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L - Ramp-up Rate	<3sec
Time maintained above: - Temperature (T_L) - Time(t_L)	217°C 60-260sec
Peak Temperature(T_P)	255 -0/+5°C
Time within 5°C of actual Peak Temperature(T_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes



Package Information







Ordering information

Order code	Package	Packaging option	Base quantity	Packaging specification
SODJ Series	SOD-123FL	Tape and reel	3000pcs / reel	EIA STD RS-481

Revision history

Date	Revision	Changes
5-Jul.-2021	4.0	Update