

400W Surface Mount Transient Voltage Suppressor

Features

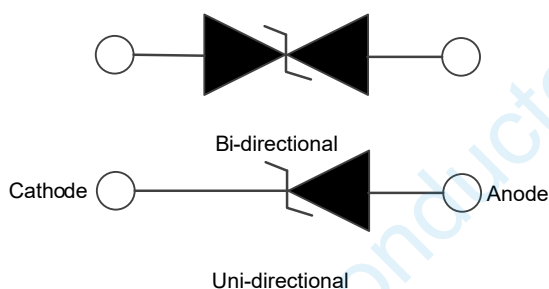
- ✧ Glass passivated junction chip
- ✧ 400 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- ✧ Excellent clamping capability
- ✧ Low reverse leakage
- ✧ Very fast response time
- ✧ Lead and body according with RoHS standard

Applications

- ✧ Power lines
- ✧ Automotive and Telecommunication
- ✧ Industrial Electronics
- ✧ Computers & Consumer Electronics

Mechanical Data

- ✧ UL Flame Rating : UL94V-0
- ✧ RoHS/WEEE Compliant



SOD123FL

Absolute Maximum Rating at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbols	Value	Unit
Peak power dissipation with a 10/1000 us waveform ⁽¹⁾	P_{PP}	400	W
Peak pulse current with a 10/1000 us waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75\text{ }^{\circ}\text{C}$	P_D	3	W
Peak forward surge current, 8.3 ms single half sinewave unidirectional only ⁽²⁾	I_{FSM}	40	A
Maximum instantaneous forward voltage at 15 A for unidirectional only ⁽³⁾	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Note:

1)Non-repetitive current pulse per Fig.5 and derated above $T_A = 25\text{ }^{\circ}\text{C}$ per Fig.1 ;

2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;

Electrical Characteristics at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage V_{BR} @ I_T		Test Current	Max. Clamping Voltage @ I_{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V_{RWM}
UNI-POLAR	BI-POLAR	UNI	BI	$V_{RWM}(V)$	Min.(V)	Max.(V)	$I_T(mA)$	$V_{C\ MAX}(V)$	$I_{PP}(A)$	$I_R(\mu A)$
P4SMF5.0A	P4SMF5.0CA	AE	WE	5.0	6.40	7.00	10	9.2	43.5	800
P4SMF6.0A	P4SMF6.0CA	AG	WG	6.0	6.67	7.37	10	10.3	38.8	800
P4SMF6.5A	P4SMF6.5CA	AK	WK	6.5	7.22	7.98	10	11.2	35.7	500
P4SMF7.0A	P4SMF7.0CA	AM	WM	7.0	7.78	8.60	10	12.0	33.3	200
P4SMF7.5A	P4SMF7.5CA	AP	WP	7.5	8.33	9.21	1	12.9	31.0	100
P4SMF8.0A	P4SMF8.0CA	AR	WR	8.0	8.89	9.83	1	13.6	29.4	50
P4SMF8.5A	P4SMF8.5CA	AT	WT	8.5	9.44	10.40	1	14.4	27.8	20
P4SMF9.0A	P4SMF9.0CA	AV	WV	9.0	10.00	11.10	1	15.4	26.0	10
P4SMF10A	P4SMF10CA	AX	WX	10.0	11.10	12.30	1	17.0	23.5	5
P4SMF11A	P4SMF11CA	AZ	WZ	11.0	12.20	13.50	1	18.2	22.0	1
P4SMF12A	P4SMF12CA	BE	XE	12.0	13.30	14.70	1	19.9	20.1	1
P4SMF13A	P4SMF13CA	BG	XG	13.0	14.40	15.90	1	21.5	18.6	1
P4SMF14A	P4SMF14CA	BK	XK	14.0	15.60	17.20	1	23.2	17.2	1
P4SMF15A	P4SMF15CA	BM	XM	15.0	16.70	18.50	1	24.4	16.4	1
P4SMF16A	P4SMF16CA	BP	XP	16.0	17.80	19.70	1	26.0	15.4	1
P4SMF17A	P4SMF17CA	BR	XR	17.0	18.90	20.90	1	27.6	14.5	1
P4SMF18A	P4SMF18CA	BT	XT	18.0	20.00	22.10	1	29.2	13.7	1
P4SMF20A	P4SMF20CA	BV	XV	20.0	22.20	24.50	1	32.4	12.3	1
P4SMF22A	P4SMF22CA	BX	XX	22.0	24.40	26.90	1	35.5	11.3	1
P4SMF24A	P4SMF24CA	BZ	XZ	24.0	26.70	29.50	1	38.9	10.3	1
P4SMF26A	P4SMF26CA	CE	YE	26.0	28.90	31.90	1	42.1	9.5	1
P4SMF28A	P4SMF28CA	CG	YG	28.0	31.10	34.40	1	45.4	8.8	1
P4SMF30A	P4SMF30CA	CK	YK	30.0	33.50	36.80	1	48.4	8.3	1
P4SMF33A	P4SMF33CA	CM	YM	33.0	36.70	40.60	1	53.3	7.5	1
P4SMF36A	P4SMF36CA	CP	YP	36.0	40.00	44.20	1	58.1	6.9	1
P4SMF40A	P4SMF40CA	CR	YR	40.0	44.40	49.10	1	64.5	6.2	1
P4SMF43A	P4SMF43CA	CT	YT	43.0	47.80	52.80	1	69.4	5.8	1
P4SMF45A	P4SMF45CA	CV	YV	45.0	50.00	55.30	1	72.7	5.5	1
P4SMF48A	P4SMF48CA	CX	YX	48.0	53.30	58.90	1	77.4	5.2	1
P4SMF51A	P4SMF51CA	CZ	YZ	51.0	56.70	62.70	1	82.4	4.9	1
P4SMF54A	P4SMF54CA	RE	ZE	54.0	60.00	66.30	1	87.1	4.6	1
P4SMF58A	P4SMF58CA	RG	ZG	58.0	64.40	71.20	1	93.6	4.3	1
P4SMF60A	P4SMF60CA	RK	ZK	60.0	66.70	73.70	1	96.8	4.1	1
P4SMF64A	P4SMF64CA	RM	ZM	64.0	71.10	78.60	1	103.0	3.9	1
P4SMF70A	P4SMF70CA	RP	ZP	70.0	77.80	86.00	1	113.0	3.5	1
P4SMF75A	P4SMF75CA	RR	ZR	75.0	83.30	92.10	1	121.0	3.3	1
P4SMF78A	P4SMF78CA	RT	ZT	78.0	86.70	95.80	1	126.0	3.2	1
P4SMF85A	P4SMF85CA	RV	ZV	85.0	94.4	104.0	1	137.0	2.9	1
P4SMF90A	P4SMF90CA	RX	ZX	90.0	100.0	111.0	1	146.0	2.7	1
P4SMF100A	P4SMF100CA	RZ	ZZ	100.0	111.0	123.0	1	162.0	2.5	1
P4SMF110A	P4SMF110CA	SE	VE	110.0	122.0	135.0	1	177.0	2.3	1
P4SMF120A	P4SMF120CA	SG	VG	120.0	133.0	147.0	1	193.0	2.1	1
P4SMF130A	P4SMF130CA	SK	VK	130.0	144.0	159.0	1	209.0	1.9	1
P4SMF150A	P4SMF150CA	SM	VM	150.0	167.0	185.0	1	243.0	1.6	1
P4SMF160A	P4SMF160CA	SP	VP	160.0	178.0	197.0	1	259.0	1.5	1
P4SMF170A	P4SMF170CA	SR	VR	170.0	189.0	209.0	1	275.0	1.5	1
P4SMF180A		ST		180.0	201.0	222.0	1	292.0	1.4	1
P4SMF190A		SU		190.0	209.0	243.0	1	308.0	1.3	1
P4SMF200A		SV		200.0	224.0	247.0	1	324.0	1.2	1
P4SMF210A		SW		210.0	231.0	268.0	1	340.0	1.2	1
P4SMF220A		GX		220.0	246.0	272.0	1	356.0	1.1	1

Typical Characteristics at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

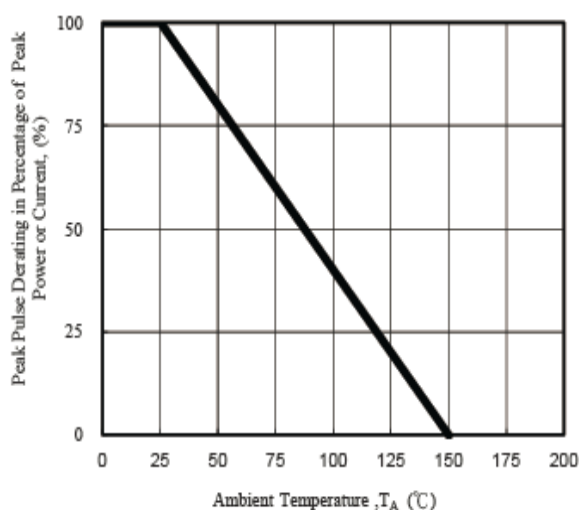


Fig. 1 - Pulse Derating Curve

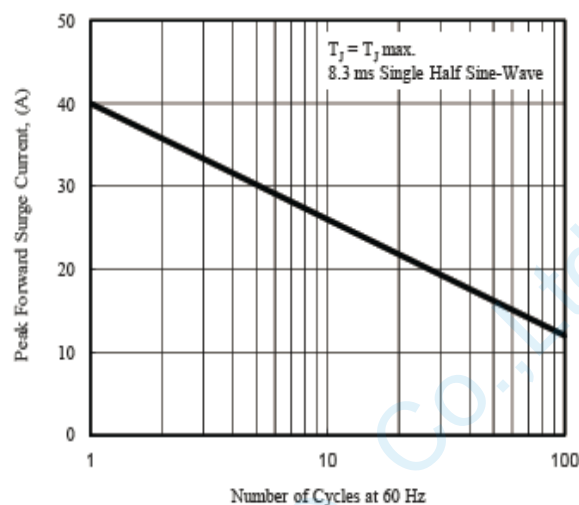


Fig. 2 - Maximum Non-Repetitive Surge Current

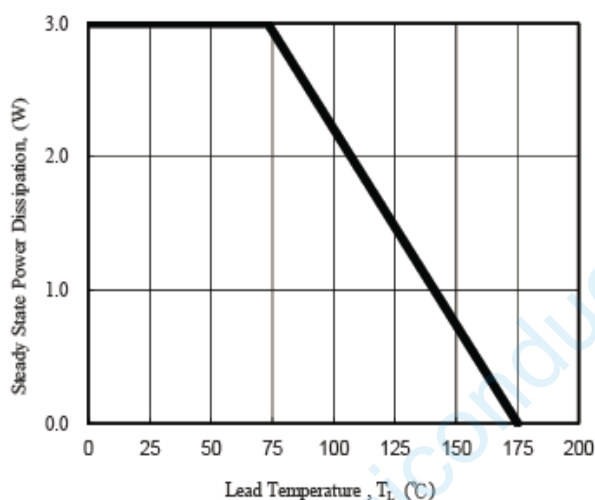


Fig. 3 - Steady State Power Derating Curve

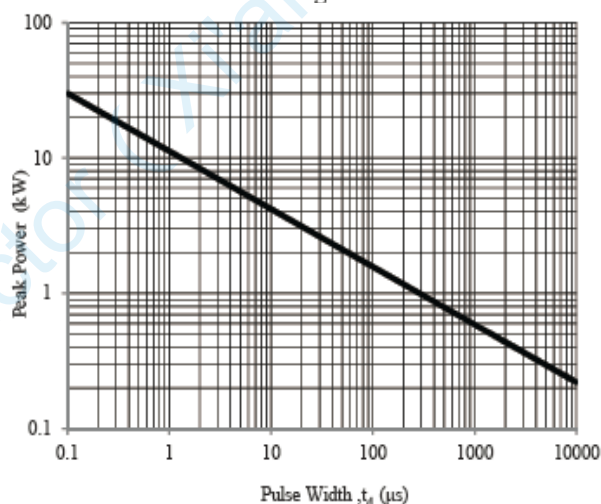


Fig. 4 - Peak Pulse Power Rating Curve

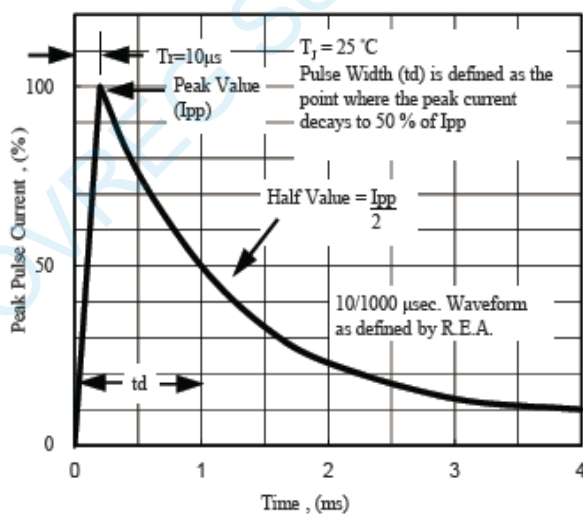


Fig. 5 - Pulse Waveform

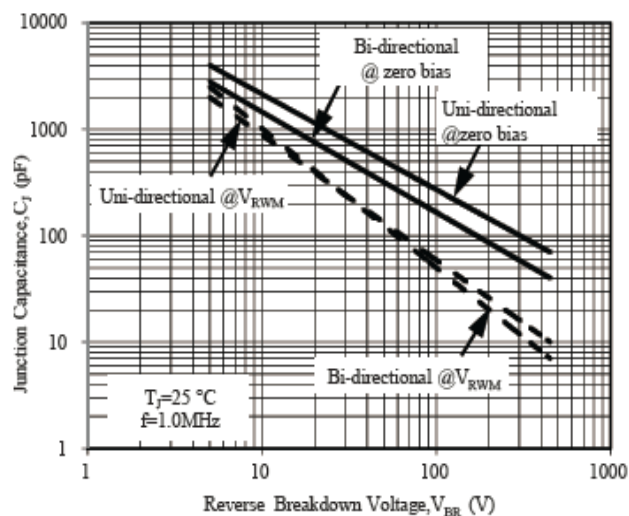
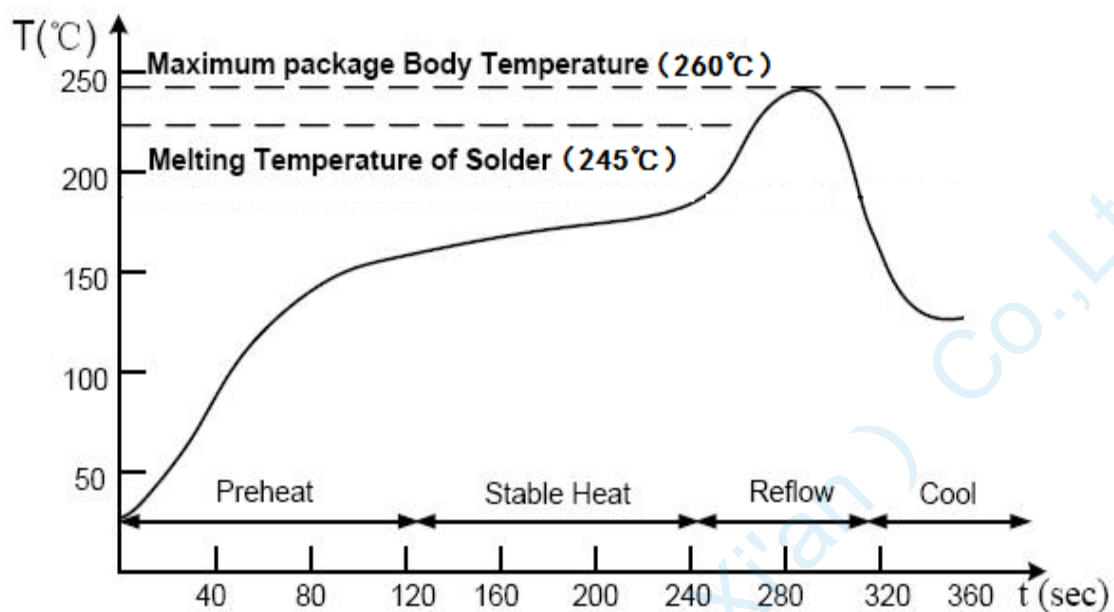


Fig. 6 - Typical Junction Capacitance

Soldering Parameters

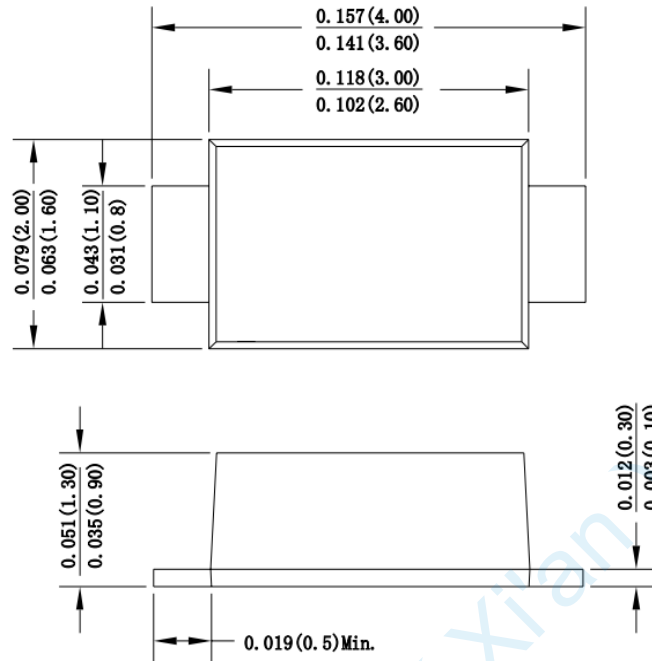


Note:

Recommended reflow methods: IR, vapor phase oven, hot air oven, wave solder. The device can be exposed to a maximum temperature of 260°C for 10 seconds. Devices can be cleaned using standard industry methods and solvents.

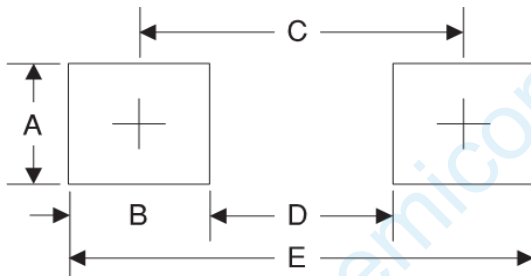
If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Package Information



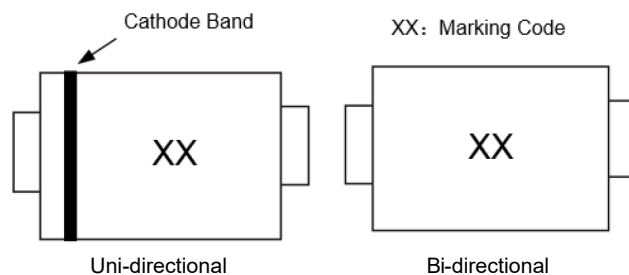
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Recommend PCB Layout



Symbol	Unit (mm)	Unit (inch)
A	1.2	0.048
B	1.15	0.045
C	3.10	0.122
D	1.95	0.077
E	4.25	0.167

Marking



Ordering Information

Part number	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
P4SMF Series	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton