



## SMDJ58CAP-3L Transient Voltage Suppressor

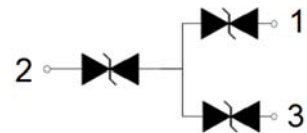
Rev.1.1

### DESCRIPTION:

SMDJ58CAP-3L is designed for DC 48V, POE supply equipment, It is used to replace the SMDJ series TVS, also can be solve the POE normal solution which use TSPD.



SMC-3



Symbol

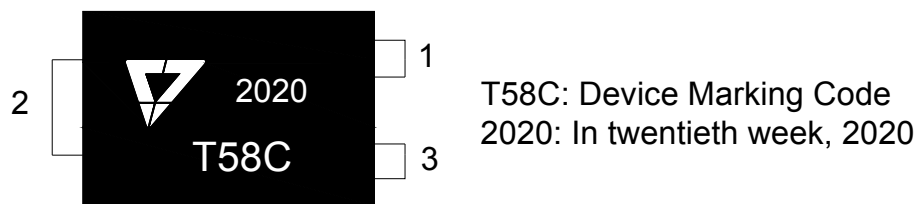
### FEATURES:

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- ✧ High temperature to reflow soldering: 260°C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ For surface mounted applications in order to optimize board space.
- ✧ UL 497B item recognized. (File No.:E480698).
- ✧ IEC61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact).

### ABSOLUTE MAXIMUM RATINGS( $T_A=25^\circ C$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	$T_{STG}$	-55 to +150	°C
Operating junction temperature range	$T_J$	-55 to +150	°C
Peak pulse power dissipation at 10/1000µs waveform	$P_{PP}$	3000	W
Peak pulse voltage at 1.2/50µs-8/20µs@2Ω waveform	$V_{PP}$	1500	V
Peak pulse voltage at 10/700µs waveform	$V_{PP}$	6000	V
Typical thermal resistance junction to lead	$R_{\theta JL}$	30	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	80	°C/W

MARKING



ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

Part Number	V <sub>R</sub>	I <sub>R@V<sub>R</sub></sub>	V <sub>BR@I<sub>T</sub></sub>		I <sub>T</sub>	V <sub>C@V<sub>PP</sub>①</sub>	V <sub>C@V<sub>PP</sub>②</sub>	V <sub>C@I<sub>PP</sub>③</sub>	I <sub>PP</sub> ③
Bi-polar	V	max(μA)	min(V)	max(V)	mA	max(V)	max(V)	max(V)	A
SMDJ58CAP-3L	58	2	60	75	1	90	90	90	36

① Surge waveform: 10/700μs@40Ω, V<sub>PP</sub>: 6kV

② Surge waveform: 1.2/50μs-8/20μs@2Ω, V<sub>PP</sub>: 1500V

③ Surge waveform: 10/1000μs

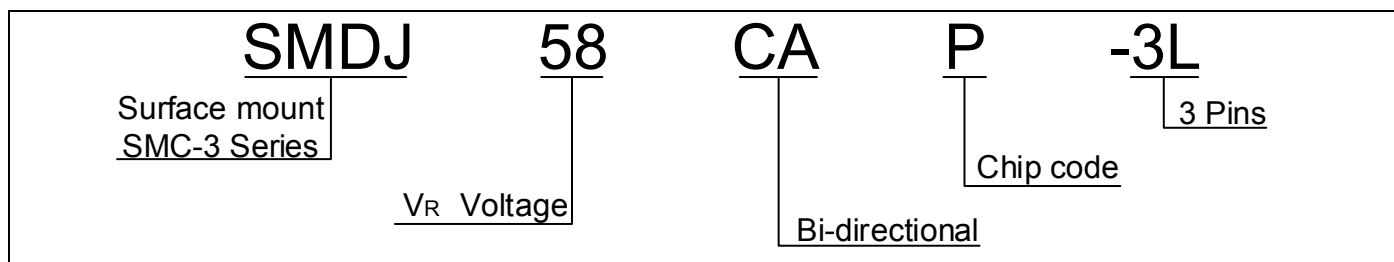
V<sub>R</sub>: Stand-off voltage -- Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown voltage

V<sub>C</sub>: Clamping voltage -- Peak voltage measured across the suppressor at a specified surge voltage

I<sub>R</sub>: Reverse leakage current

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

FIG.1: V- I curve characteristics (Bi-directional)

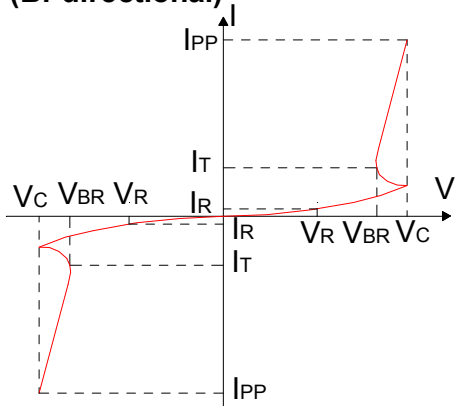


FIG.2: Pulse waveform

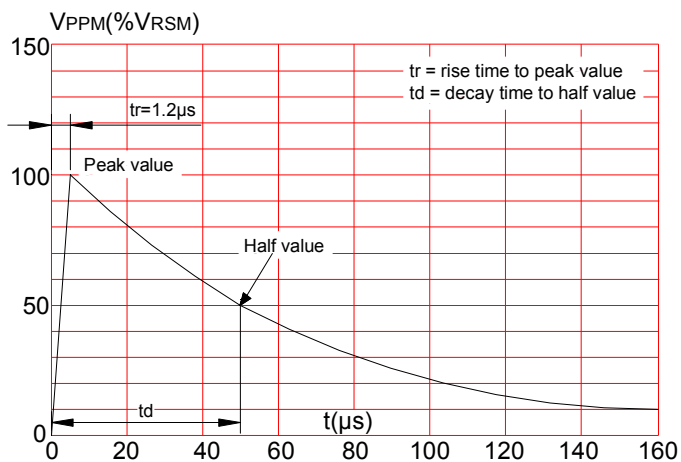


FIG.3: Pulse waveform

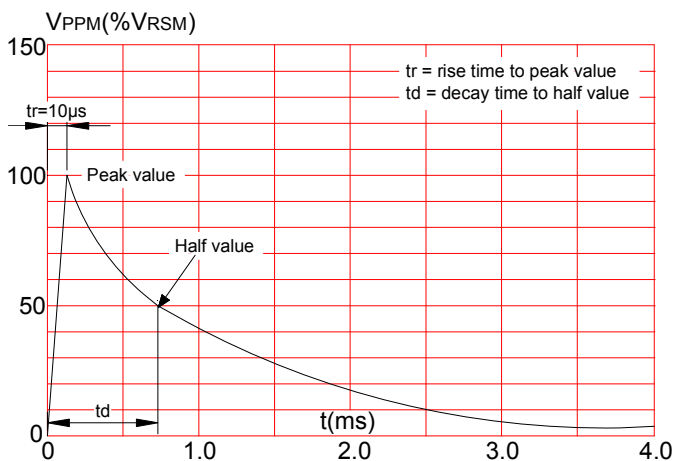


FIG.4: Pulse waveform

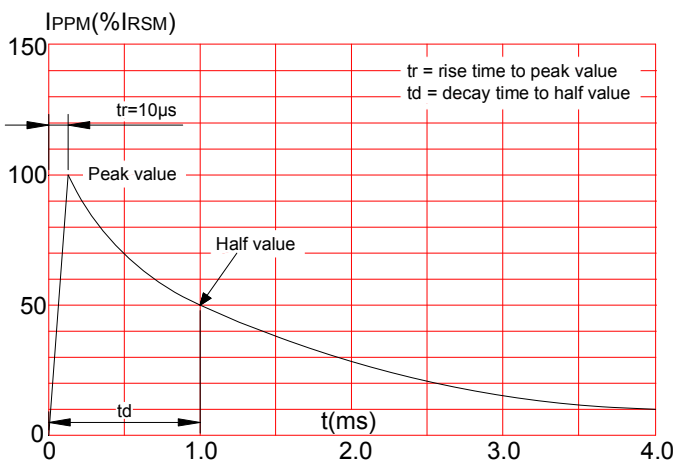


FIG.5: Pulse waveform

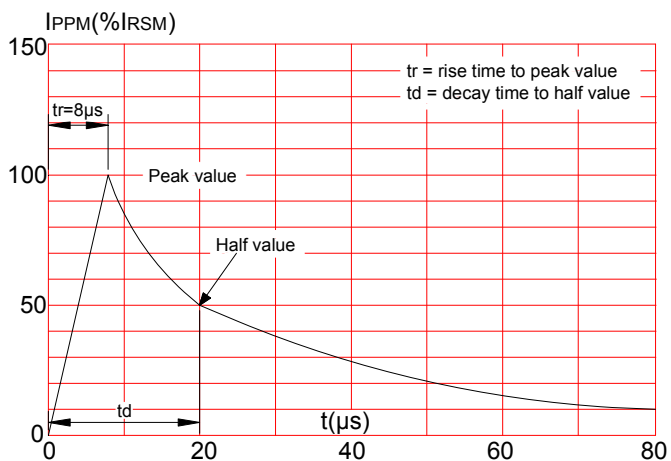
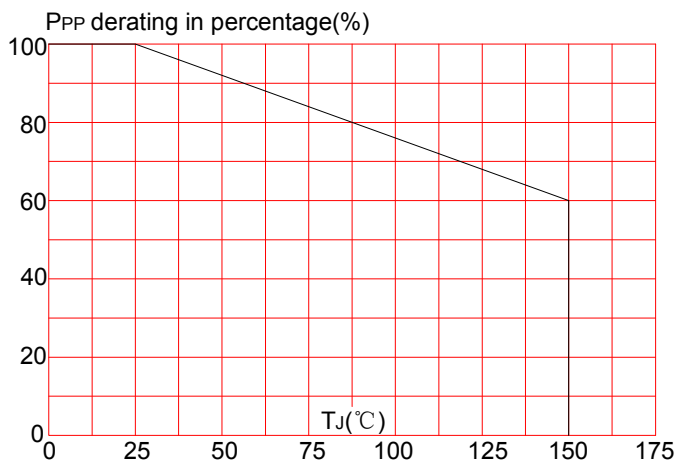
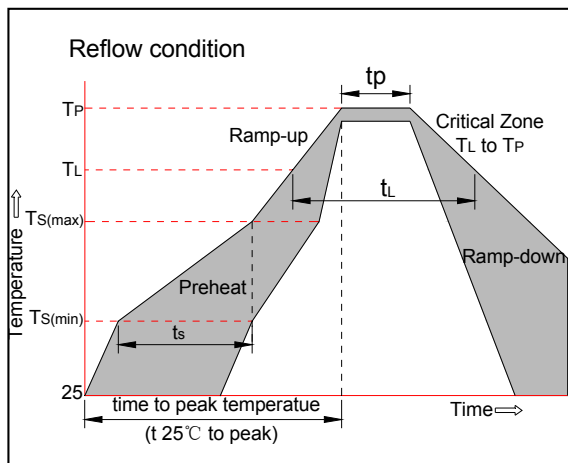


FIG.6: Pulse derating curve(10/1000μs)

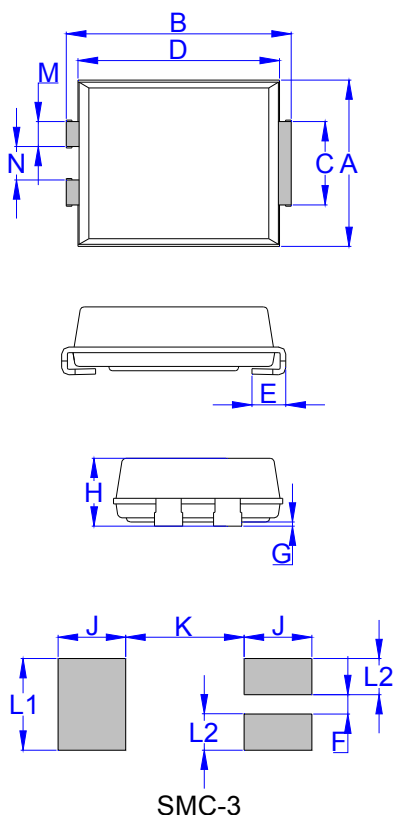


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ )to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquidus)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C

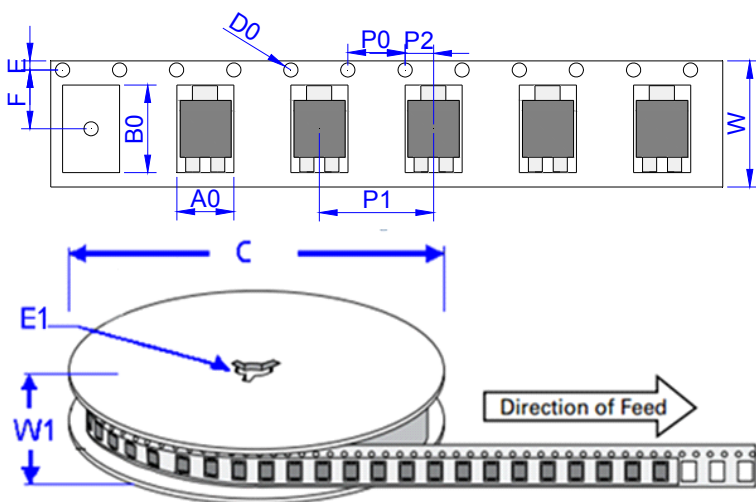


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	7.70	8.20	0.303	0.323
C	2.75	3.25	0.108	0.128
D	6.90	7.40	0.272	0.291
E	0.95	1.52	0.037	0.060
G	-	0.30	-	0.012
H	2.15	2.62	0.085	0.103
M	0.70	1.10	0.028	0.043
N	1.00	1.40	0.039	0.055
L2	1.30		0.051	
F	0.70		0.028	
J	2.40		0.094	
K		4.20		0.165
L1	3.30		0.130	

TAPE AND REEL SPECIFICATION-SMC-3



Ref.	Dimensions	
	Millimeters	Inches
A0	6.05 ± 0.3	0.238 ± 0.012
B0	8.31 ± 0.3	0.327 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	7.50 ± 0.2	0.295 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	16.0 ± 0.2	0.630 ± 0.008
W1	19.7 ± 2.0	0.776 ± 0.079

PART No.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMDJ58CAP-3L	3,000	48,000	13 inch reel pack

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