



SMTJ Series 3500A Transient Voltage Suppressor

Rev.2.0

DESCRIPTION:

The SMTJ series of high current transient suppressors have been specially designed for use in D.C. line protection and any demanding applications. They offer superior clamping characteristics by virtue of the snapback technology. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level.



SMT-4



FEATURES:

- ✧ Halogen-free.
- ✧ Bi-directional.
- ✧ RoHS compliant.
- ✧ Low slope resistance.
- ✧ Very low clamping voltage.
- ✧ Sharp breakdown voltage.
- ✧ Glass passivated junction.
- ✧ Snapback technology for superior clamping factor.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ High temperature reflow soldering: 260°C/40s at terminals.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ UL 1449 item recognized. (File No.: E494389).
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

ABSOLUTE MAXIMUM RATINGS_(T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse current at 8/20μs waveform	I _{PP}	3500	A
Operating junction temperature range	T _J	-55 to +150	°C
Storage temperature range	T _{STG}	-55 to +150	°C
Typical thermal resistance junction to lead	R _{θJL}	15	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	65	°C/W

MARKING



TJ58CA: Device Marking Code
1920: the 20th week, 2019

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number	Marking	V _R	V _{BR@I_T}		I _T	I _{R@V_R}	V _{C@8/20μs}	V _{C@8/20μs}	C _o ^①
			3000A	3500A			V	V	
Bi-Polar	Bi	V	Min(V)	Max(V)	mA	Max(μA)	V	V	Typ(pF)
SMTJ58CAT-Z	TJ58CA	58	64	70	10	5	110	120	3000
SMTJ66CAT-Z	TJ66CA	66	72	80	10	5	120	130	2500
SMTJ76CAT-Z	TJ76CA	76	85	95	10	5	140	150	2200
SMTJ86CAT-Z	TJ86CA	86	95	105	10	5	157	170	1900

V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

① Off-state capacitance is measured in V_{RWM}=0V, f=1MHz

ORDERING INFORMATION

SMTJ Surface mount SMT-4 Series	xx V _R Voltage C:Bi-directional	C	A 5% V _{BR} voltage tolerance	T 8/20μs 3500A	-Z Customer code
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RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

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

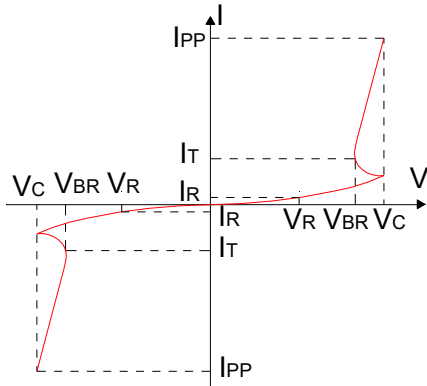


FIG.2: Typical V_{BR} vs. junction temperature

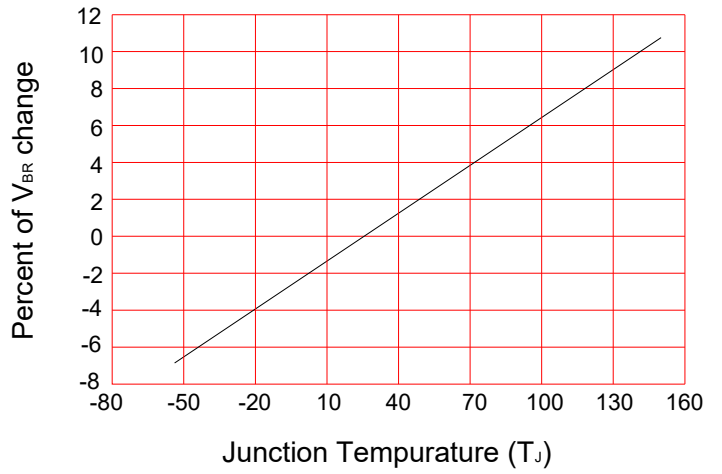


FIG.3: Pulse waveform

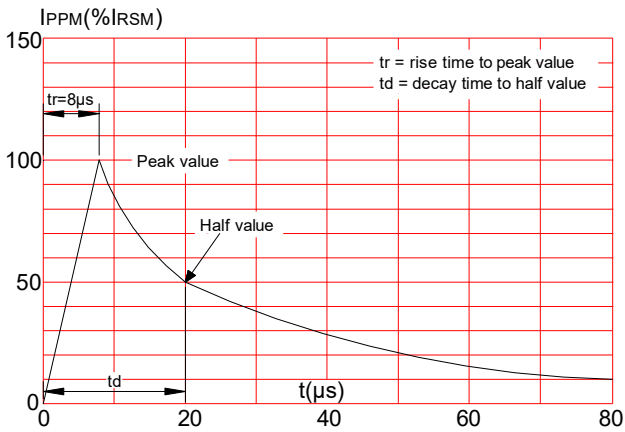


FIG.4: Pulse derating curve

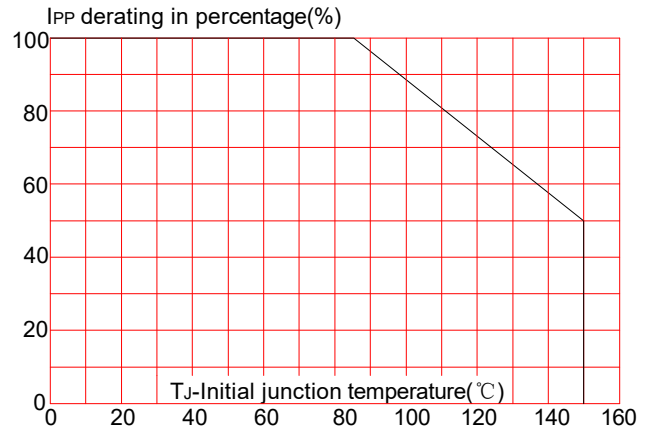
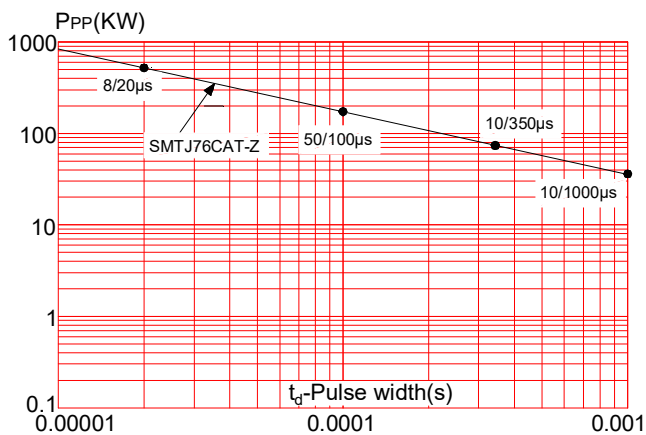
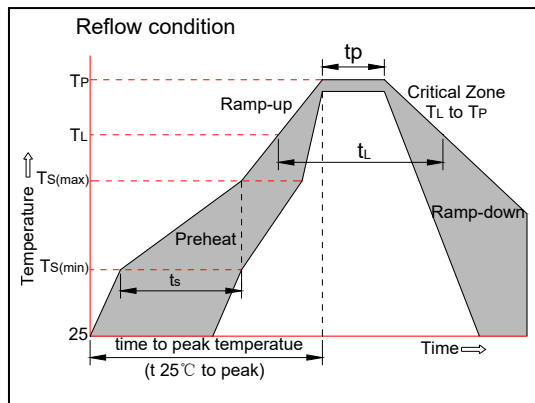


FIG.5: Typical peak pulse power rating curve

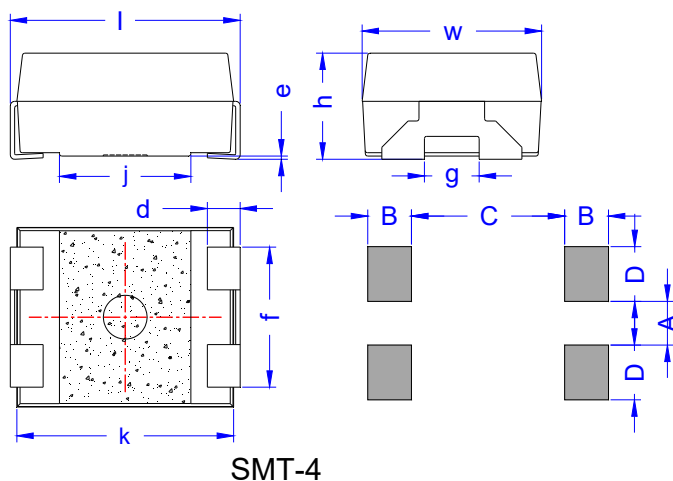


SOLDERING PARAMETERS

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) (t_s)	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

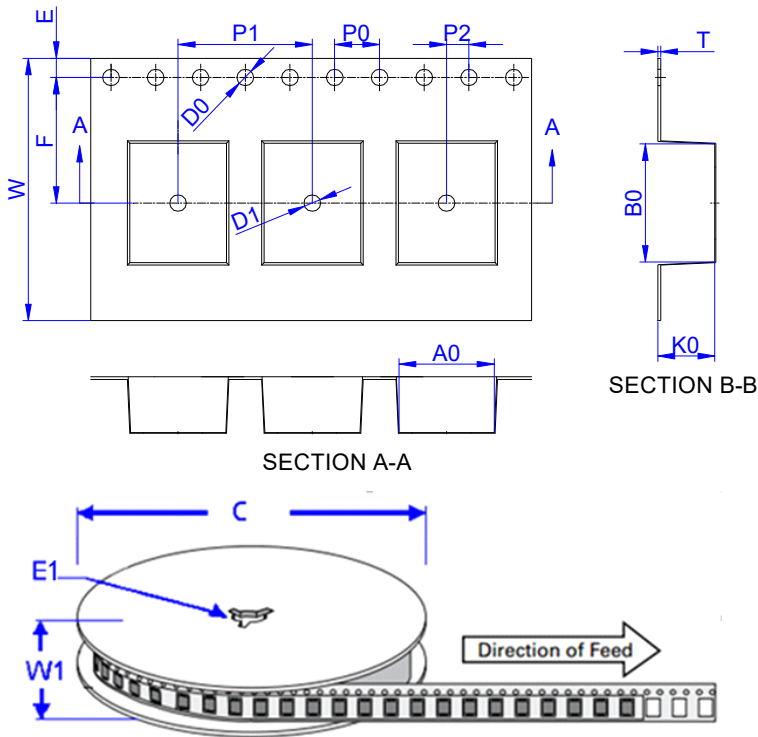


PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
l	10.10		10.70	0.398		0.421
w	7.70		8.30	0.303		0.327
h	4.20		5.00	0.165		0.197
d	1.20		1.80	0.047		0.071
e	0		0.30	0		0.012
f	6.20		6.60	0.244		0.260
g	2.40		2.60	0.094		0.102
j	5.90		6.10	0.232		0.240
k	9.70		10.1	0.382		0.398
A			2.00			0.079
B	2.00			0.079		
C			7.00			0.276
D	2.50			0.098		

TAPE AND REEL SPECIFICATION-SMT-4



Ref.	Dimensions	
	Millimeters	Inches
A0	8.50±0.10	0.335±0.004
B0	10.80±0.10	0.425±0.004
C	330.0	13.0
D0	1.50±0.10	0.059±0.004
D1	1.50±0.10	0.059±0.004
E	1.75±0.10	0.069±0.004
E1	13.3±0.3	0.524±0.012
F	11.50±0.10	0.453±0.004
K0	5.10±0.10	0.201±0.004
P0	4.00±0.10	0.157±0.004
P1	12.00±0.10	0.472±0.004
P2	2.00±0.10	0.079±0.004
T	0.30±0.05	0.012±0.002
W	24.00±0.30	0.945±0.012
W1	28.5±2.0	1.122±0.079

PART No.	PACKAGE TYPE	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMTJxxCAT-Z	SMT-4	1,000	4,000	13 inch reel pack

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