



5.0SMDJ58AS 5000W Transient Voltage Suppressor

Rev.1.1

DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

FEATURES:

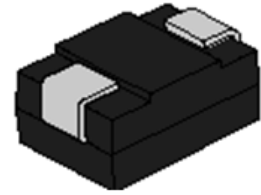
- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 5000W peak pulse power capability at 10/1000μs waveform.
- ✧ Typical I_R less than 1μA.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature to reflow soldering: 260°C/40s at terminals.
- ✧ Plastic package has under writers 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) ±30kV (air), ±30kV (contact).

SURGE LEVEL

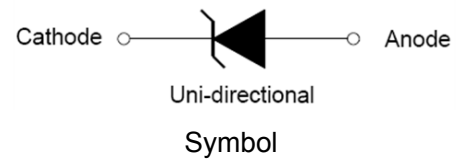
- ✧ 10/700μs 40ohm 6KV
- ✧ 1.2/50μs-8/20μs 2ohm 1KV

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

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J/T_{STG}	-55 to +150	°C
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	5000	W
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	6.5	W
Peak pulse voltage at 10/700μs@40Ω waveform	V_{PP}	6000	V
Peak pulse voltage at 1.2/50μs-8/20μs@2Ω waveform	V_{PP}	1000	V
Maximum instantaneous forward voltage at 100A for unidirectional only	V_F	5.0	V



SMC



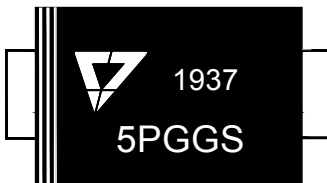
ABSOLUTE MAXIMUM RATINGS (T_A=25°C, RH=45%-75%, unless otherwise noted, continue)

Parameter	Symbol	Value	Unit
Peak forward surge current, 8.3ms single half sine wave(Note 1)	I _{FSM}	300	A
Typical thermal resistance junction to lead	R _{θJL}	15	°C/W
Typical thermal resistance junction to ambient	R _{θJA}	75	°C/W

Notes:

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

MARKING



5PGGS : Device Marking Code
1937: the 37th week, 2019

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Part Number	V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @10/700μs 6KV/40Ω	V _C @1.2/50μs- 8/20μs 1KV/2Ω	V _C @ 10/1000μs 53.5A
			min(V)	max(V)		max(V)	max(V)	max(V)
5.0SMDJ58AS	58	1	64.40	71.20	1	100	120	93.6

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 surge value

I_R: Reverse leakage current

ORDERING INFORMATION

<p>5.0SMDJ</p> <p>5000W SMC Series</p>	<p>58</p> <p>V_R Voltage</p>	<p>A</p> <p>5% V_{BR} Voltage tolerance</p>	<p>S</p> <p>Single chip</p>
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RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25°C, unless otherwise noted)

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

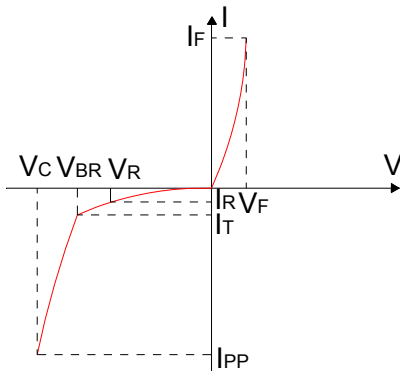


FIG.2: Pulse waveform

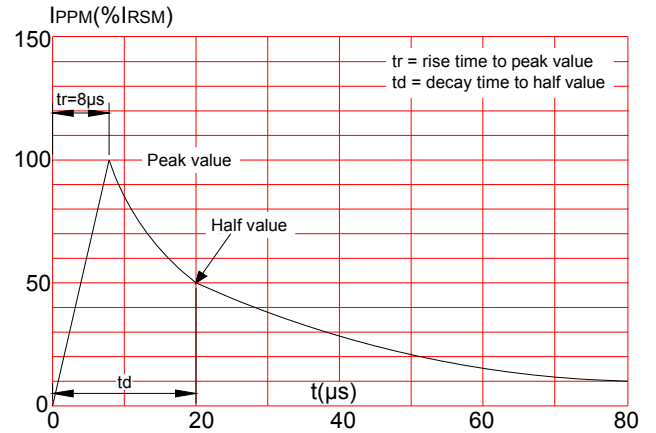


FIG.3: Pulse waveform

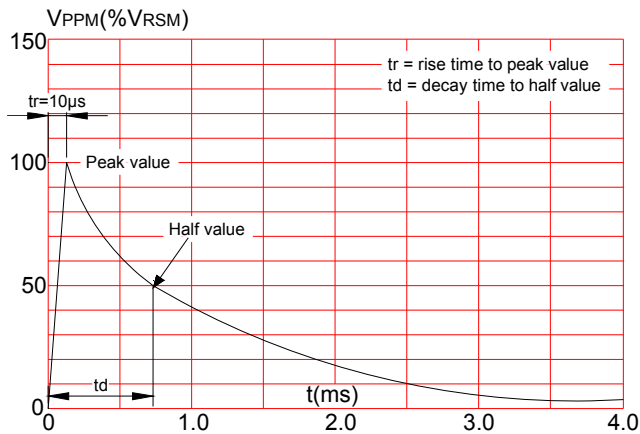


FIG.4: Pulse waveform

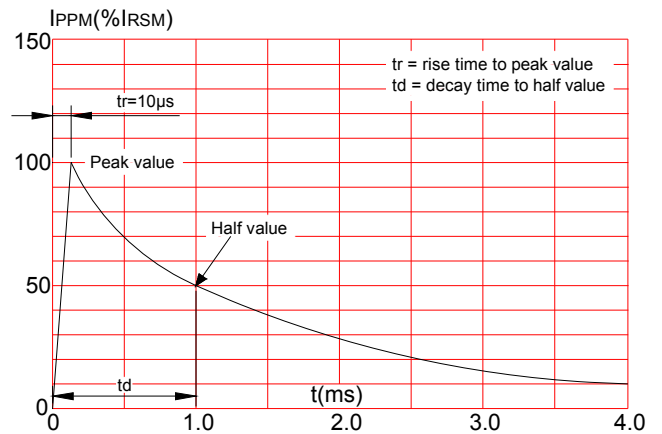


FIG.5: Pulse waveform

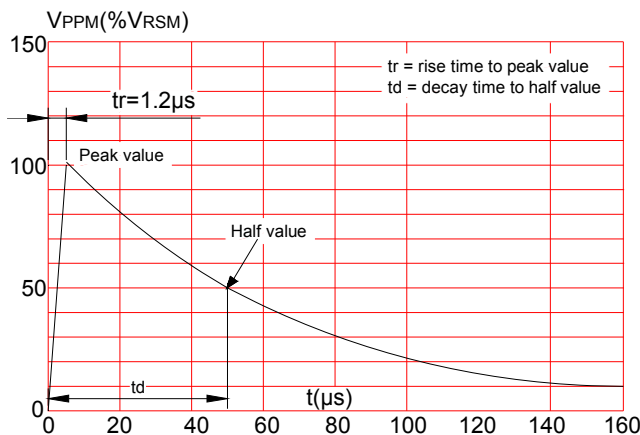
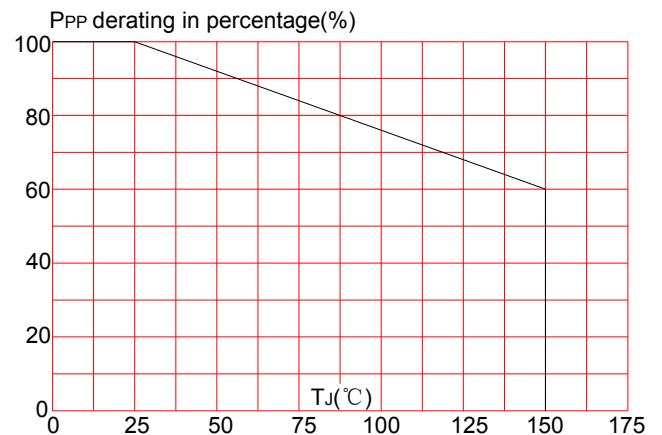
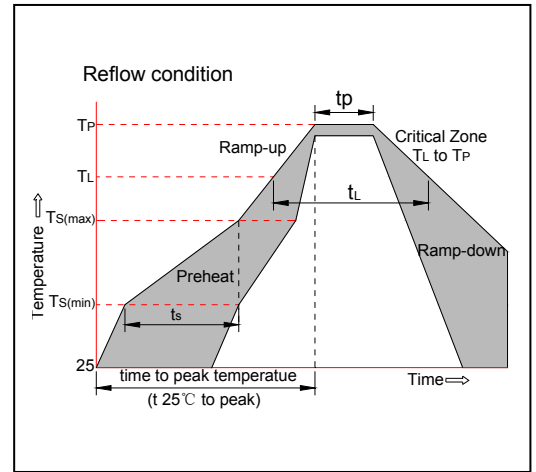


FIG.6: Pulse derating curve(10/1000μs)

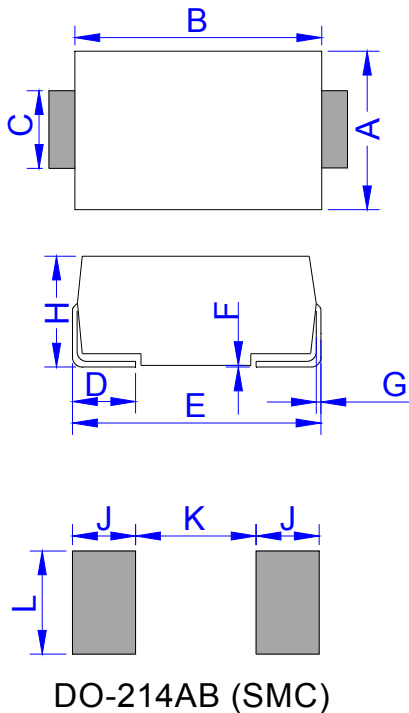


SOLDERING PARAMETERS

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) (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

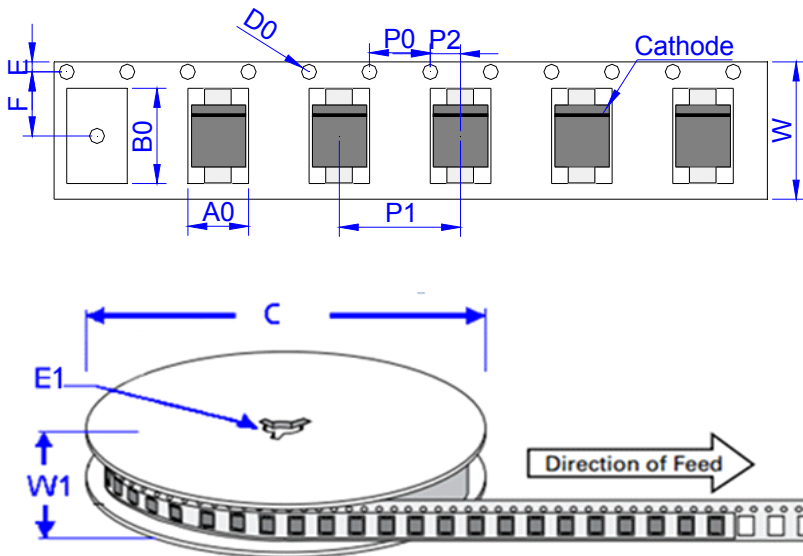


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

TAPE AND REEL SPECIFICATION-SMC



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.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
5.0SMDJ58AS	0.342	3,000	48,000	13 inch reel pack

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