

Surface Mount Automotive Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

FEATURES

- Available in uni-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO7637-2 surge spec (varied by test condition)
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245°C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- AEC -Q101 qualified.



P600

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

MECHANICAL DATA

Case: P600

Molding compound meets UL 94 V-0 flammability rating

Base P/NHE3 – RoHS compliant, AEC Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Heatsink is anode

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10x1000µs waveform (Fig.2)(Note 1) (Note 2)	P _{PPM}	12000	W
Power Dissipation on infinite heat sink at TA=50°C	P _D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 3)	I _{FSM}	600	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V _F	3.5V/5.0	V
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +175	°C

General Semiconductor

PART NUMBER		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE VBR(V)MAX.@IT		TEST CURRENT	REVERSE LEAKAGE @VRWM	PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @Ipp
BI- POLAR	UNI-POLAR	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	IR (μA)	Ipp (A)	Vc (v)
P12S12CA	P12S12A	12.0	13.30	14.70	1	300	603.02	19.9
P12S13CA	P12S13A	13.0	14.40	16.50	1	300	558.14	21.5
P12S14CA	P12S14A	14.0	15.60	17.20	1	50	517.24	23.2
P12S15CA	P12S15A	15.0	16.70	19.20	1	50	491.80	24.4
P12S16CA	P12S16A	16.0	17.80	19.70	1	50	461.54	26.0
P12S17CA	P12S17A	17.0	18.90	21.70	1	50	434.78	27.6
P12S18CA	P12S18A	18.0	20.00	23.30	1	10	410.96	29.2
P12S20CA	P12S20A	20.0	22.20	25.50	1	10	370.37	32.4
P12S22CA	P12S22A	22.0	24.40	28.00	1	5	338.03	35.5
P12S24CA	P12S24A	24.0	26.70	30.70	1	5	308.48	38.9
P12S26CA	P12S26A	26.0	28.90	33.20	1	5	285.04	42.1
P12S28CA	P12S28A	28.0	31.10	35.80	1	5	264.32	45.4
P12S30CA	P12S30A	30.0	33.30	38.30	1	5	247.93	48.4
P12S33CA	P12S33A	33.0	36.70	42.20	1	5	225.14	53.3
P12S36CA	P12S36A	36.0	40.00	46.00	1	5	206.54	58.1
P12S40CA	P12S40A	40.0	44.40	51.10	1	5	186.05	64.5
P12S43CA	P12S43A	43.0	47.8	52.8	1	5	172.91	69.4

Note:

For all types maximum $V_F=2.0V$ at $I_F=100A$ measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4pulses per minute maximum

Note:

(1)

(2)AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

($T_A=25^{\circ}C$ unless otherwise noted)

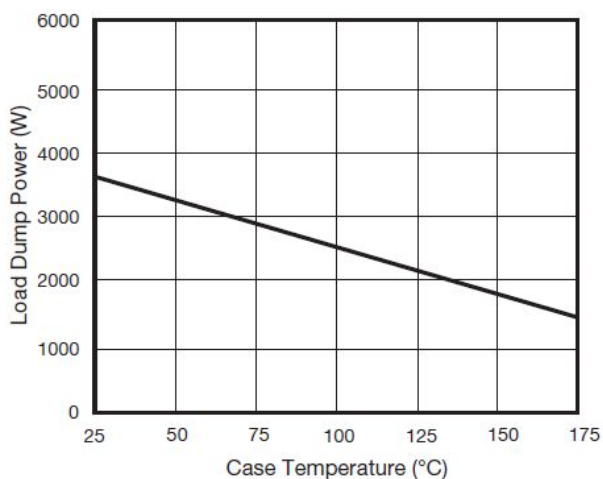
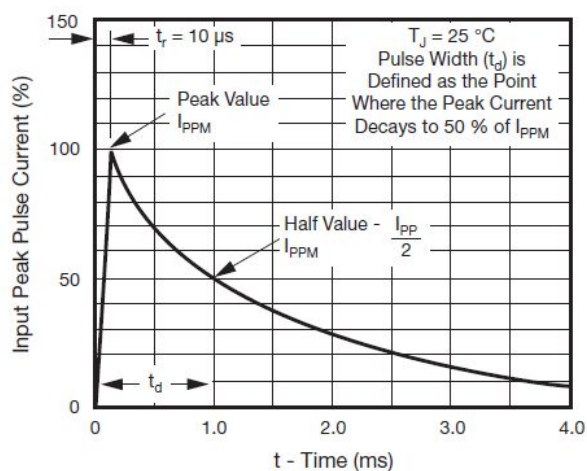
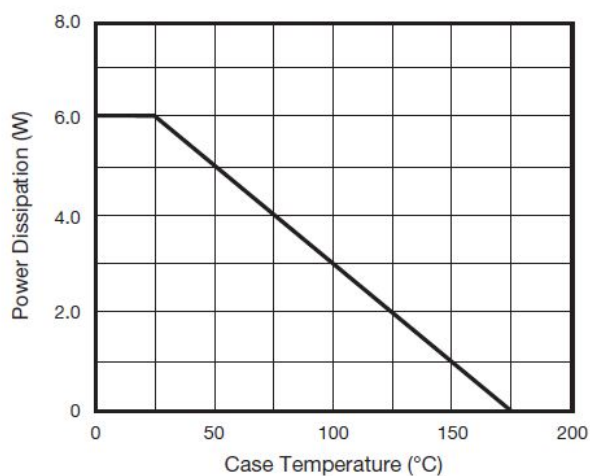


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

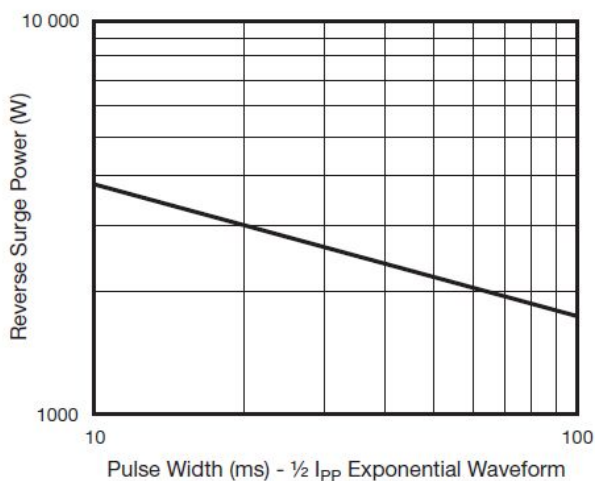


Fig. 4 - Reverse Power Capability

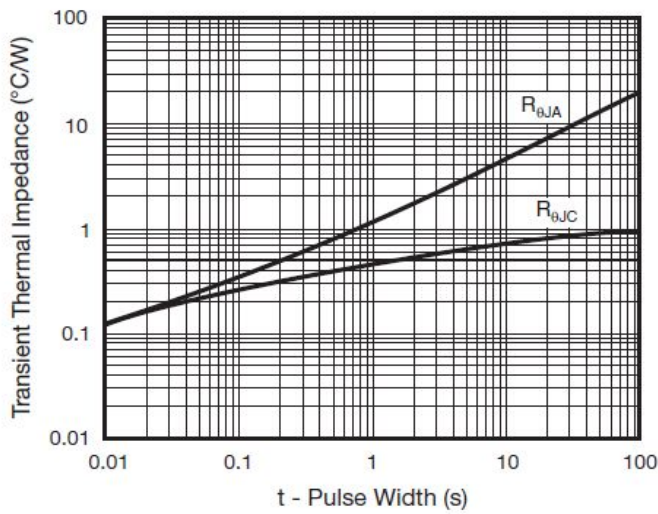
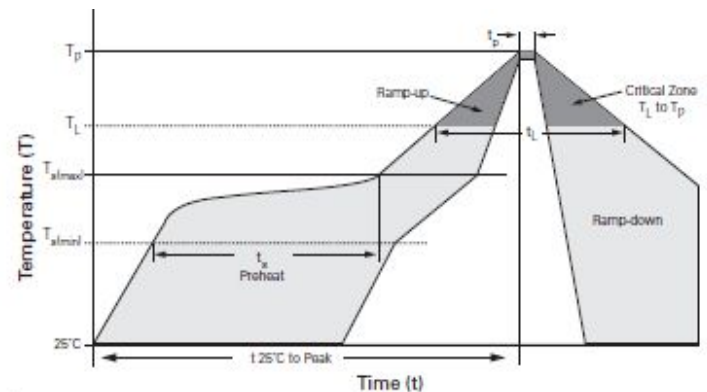


Fig. 5 - Typical Transient Thermal Impedance



Peak Temperature :	265°C
Dipping Time :	10 seconds
Soldering :	1 time

Meets IS07637-2-P5asurge spec:

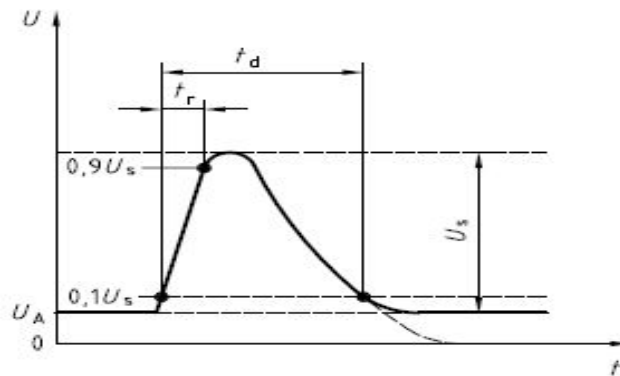
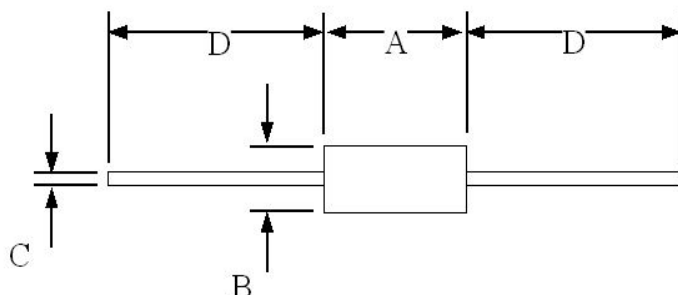


Figure 11 — Test pulse 5a

Table 9 — Parameters for test pulse 5a

Parameter	12 V system	24 V system
U_s	65 V to 87 V	123 V to 174 V
R_i	0,5 Ω to 4 Ω	1 Ω to 8 Ω
t_d	40 ms to 400 ms	100 ms to 350 ms
t_r	$(10 \frac{0}{-5})$ ms	

Product Dimensions



Dimension	Inches		Millimeters		NOTE
	MIN	MAX	MIN	MAX	
A	0.340	0.360	8.6	9.10	
B	0.340	0.360	8.6	9.10	Φ
C	0.048	0.052	1.22	1.32	Φ
D	1.000	-	25.40		

Summary of Packing Options

Package Type	Description	Packing Quantity	Industry Standard
P600 	Embossed Carrier Reel Pack	300PCS	EIA-481-D