

## 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**

### Applications

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

### Mechanical

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 <sub>PPM</sub>	10000	W
Power Dissipation on infinite heat sink at TA=50°C	P <sub>D</sub>	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional only (Note 3)	I <sub>FSM</sub>	600	A
Maximum Instantaneous Forward Voltage at 100A for Unidirectional only	V <sub>F</sub>	3.5V/5.0	V
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +175	°C

## ELA 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)
P10S12CA	P10S12A	12.0	13.30	14.70	1	300	502.51	19.9
P10S13CA	P10S13A	13.0	14.40	16.50	1	300	465.12	21.5
P10S14CA	P10S14A	14.0	15.60	17.20	1	50	431.03	23.2
P10S15CA	P10S15A	15.0	16.70	19.20	1	50	409.84	24.4
P10S16CA	P10S16A	16.0	17.80	19.70	1	50	384.62	26.0
P10S17CA	P10S17A	17.0	18.90	21.70	1	50	362.32	27.6
P10S18CA	P10S18A	18.0	20.00	23.30	1	10	342.47	29.2
P10S20CA	P10S20A	20.0	22.20	25.50	1	10	308.64	32.4
P10S22CA	P10S22A	22.0	24.40	28.00	1	5	281.69	35.5
P10S24CA	P10S24A	24.0	26.70	30.70	1	5	257.07	38.9
P10S26CA	P10S26A	26.0	28.90	33.20	1	5	237.53	42.1
P10S28CA	P10S28A	28.0	31.10	35.80	1	5	220.26	45.4
P10S30CA	P10S30A	30.0	33.30	38.30	1	5	206.61	48.4
P10S33CA	P10S33A	33.0	36.70	42.20	1	5	187.62	53.3
P10S36CA	P10S36A	36.0	40.00	46.00	1	5	172.12	58.1
P10S40CA	P10S40A	40.0	44.40	51.10	1	5	155.04	64.5
P10S43CA	P10S43A	43.0	47.8	52.8	1	5	144.09	69.4

Note:  
 For all types maximum VF=2.0V at IF=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**  
 (TA=25°C unless otherwise noted)

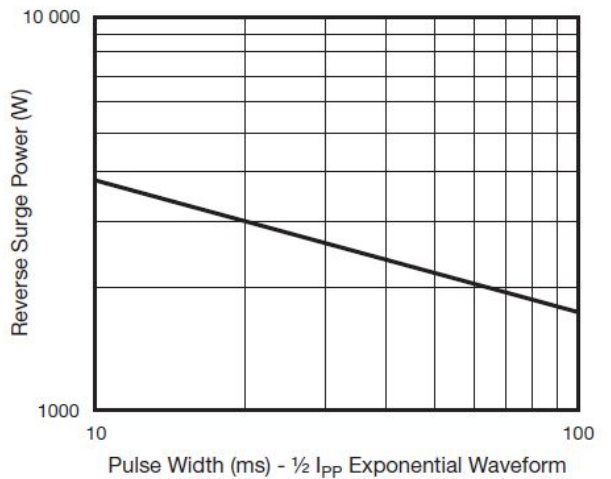
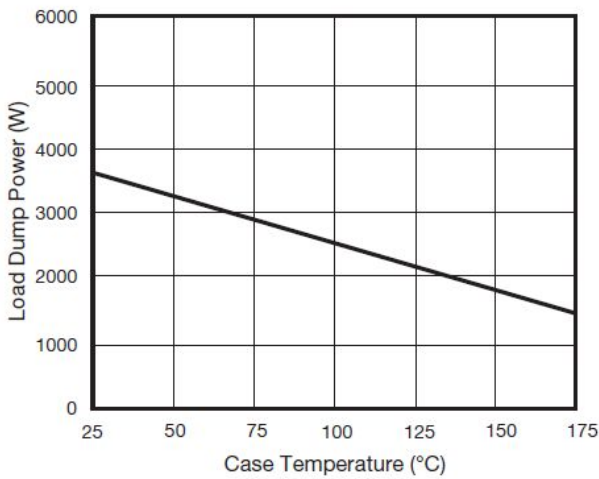
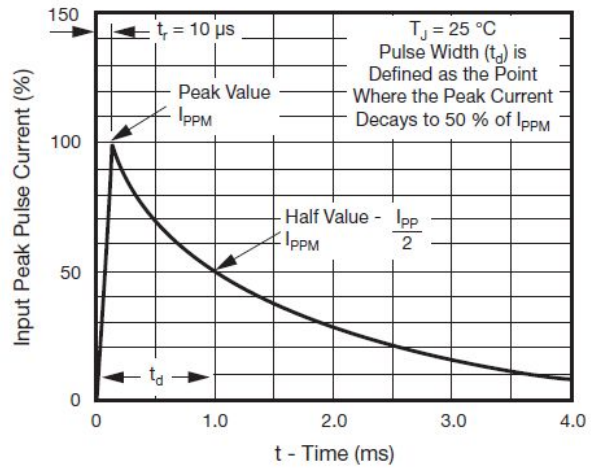
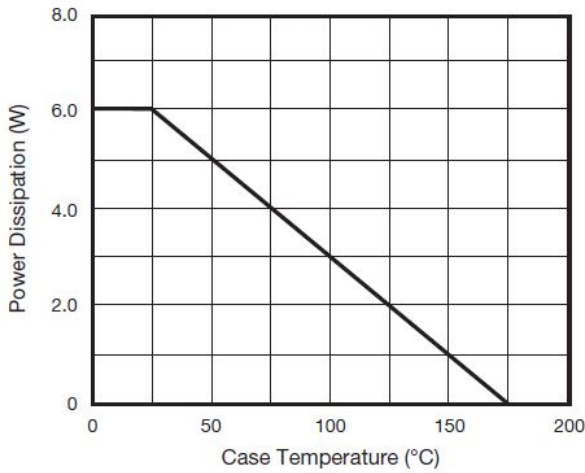


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

Fig. 4 - Reverse Power Capability

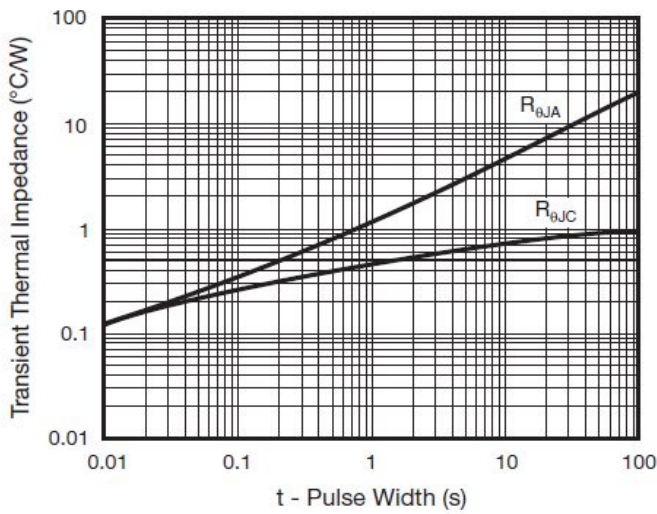
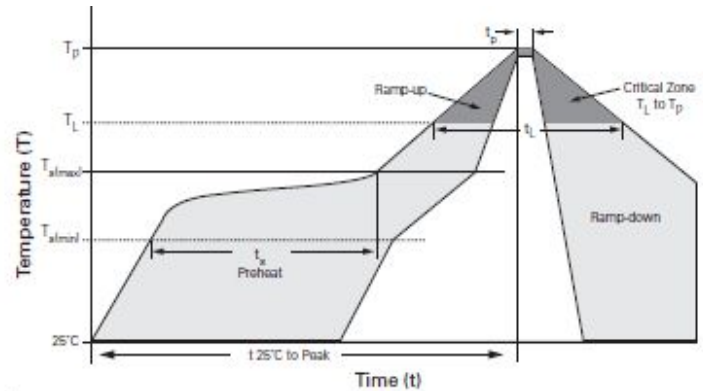


Fig. 5 - Typical Transient Thermal Impedance



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

Meets IS07637-2-P5asurge spec:

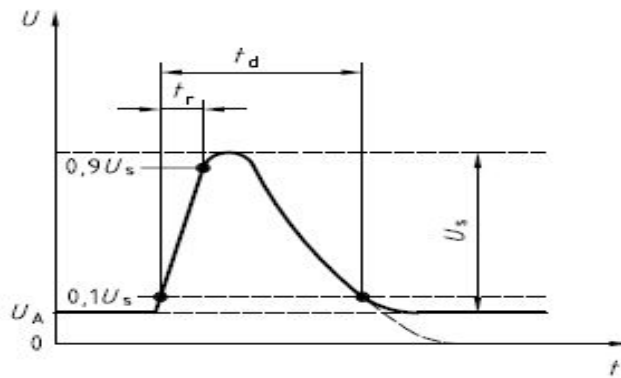
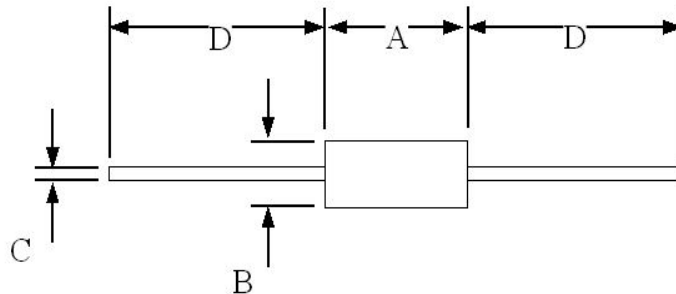


Figure 11 — Test pulse 5a

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 $\Omega$ to 4 $\Omega$	1 $\Omega$ to 8 $\Omega$
$t_d$	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	$\phi$
C	0.048	0.052	1.22	1.32	$\phi$
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