

## Features

- Uni-Directional ESD Protection of One Line
- Low Capacitance
- Low Clamping Voltage
- Moisture Sensitivity Level1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

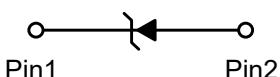
## Maximum Ratings

IEC61000-4-2 (ESD)	Air	±30KV
	Contact	±30KV
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	10A
Peak Pulse Power (8/20μs) <sup>(Note2)</sup>	P <sub>PK</sub>	130W
Operating Junction Temperature Range	T <sub>J</sub>	-55°C to +125°C
Storage Temperature Range	T <sub>STG</sub>	-55°C to +150°C

Note :

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Non-repetitive current pulse 8/20  $\mu$ s exponential decay waveform according to IEC61000-4-5.

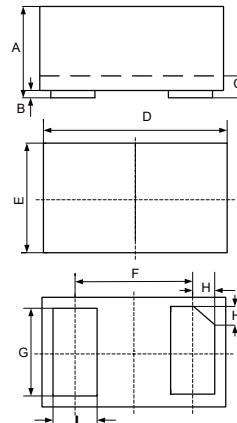
## Internal Structure



## Marking Code

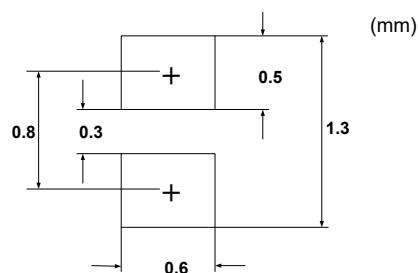


# ESD Protection Device

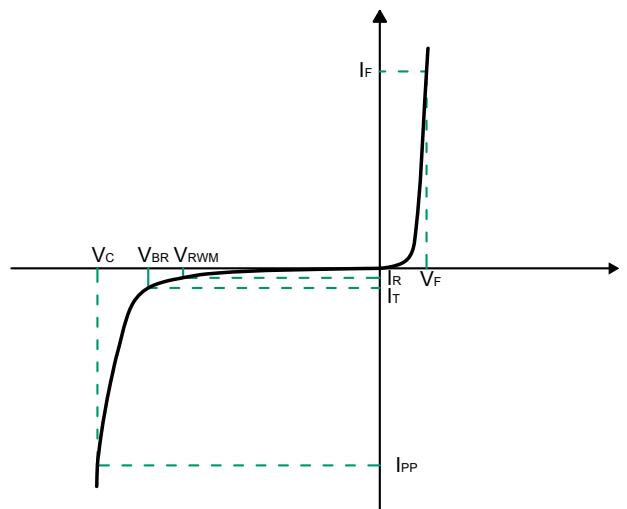


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.018	0.022	0.45	0.55	
B	0.000	0.002	0.00	0.05	
C	0.005	0.007	0.12	0.18	
D	0.037	0.041	0.95	1.05	
E	0.022	0.026	0.55	0.65	
F	0.026		0.650		TYP.
G	0.018	0.022	0.45	0.55	
H	0.003	0.007	0.07	0.17	
I	0.008	0.012	0.20	0.30	

#### SUGGESTED SOLDER PAD LAYOUT



Symbol	Parameter
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$P_{PK}$	Peak Pulse Power
$C_J$	Junction Capacitance
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$


**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Working Voltage	$V_{RWM}$				3.3	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}$	5		7.5	V
Reverse Leakage Current	$I_R$	$V_{RWM}=3.3\text{V}$			1	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F=10\text{mA}$			1.1	V
Clamping Voltage <sup>Note1</sup>	$V_C$	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			8	V
Clamping Voltage <sup>Note1</sup>	$V_C$	$I_{PP}=10\text{A}, t_p=8/20\mu\text{s}$			13	V
Junction Capacitance	$C_J$	$V_R=1.65\text{V}, f=1\text{MHz}$		0.75		pF
Dynamic Resistance <sup>Note2</sup>	$R_{DYN}$	TLP, $t_p=100\text{ns}$		0.1		$\Omega$

Note :

 1. Non-repetitive current pulse 8/20 $\mu\text{s}$  exponential decay waveform according to IEC61000-4-5.

 2. TLP parameter:  $Z_0=50\Omega$ ,  $t_p=100\text{ns}$ ,  $t_r=2\text{ns}$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

## Curve Characteristics

Fig. 1 - 8 X 20 $\mu$ s Pulse Waveform

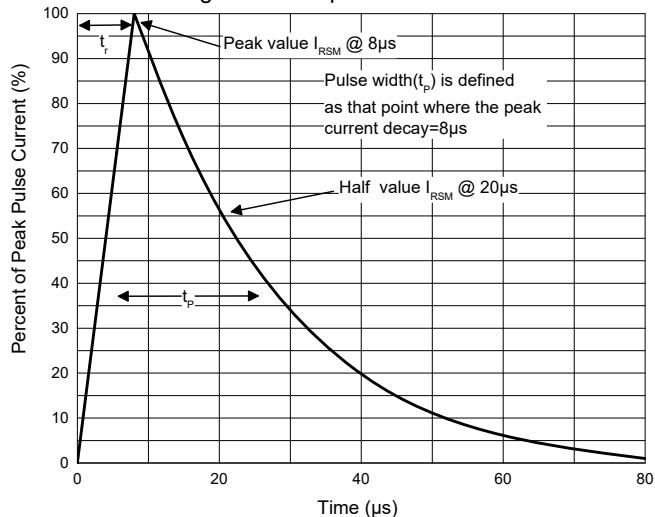


Fig. 2 - Non-Repetitive Peak Pulse Power

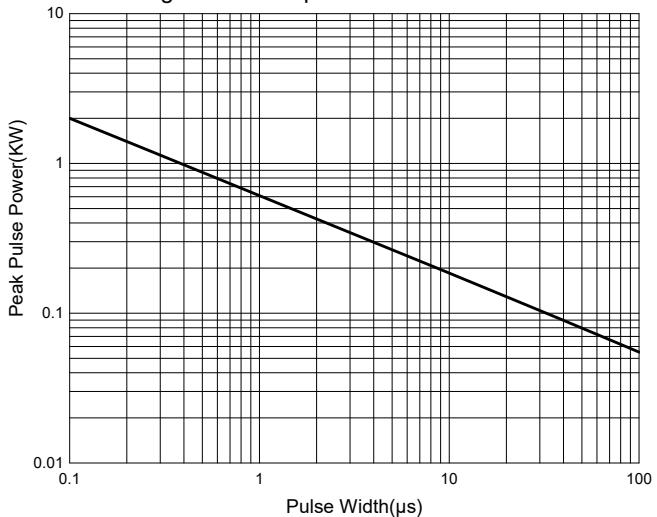


Fig. 3 - Capacitance Characteristics

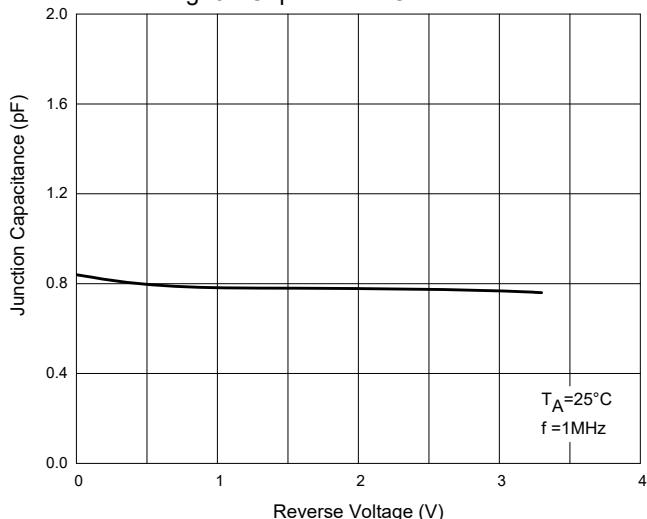


Fig. 4 - Clamping Voltage Characteristics

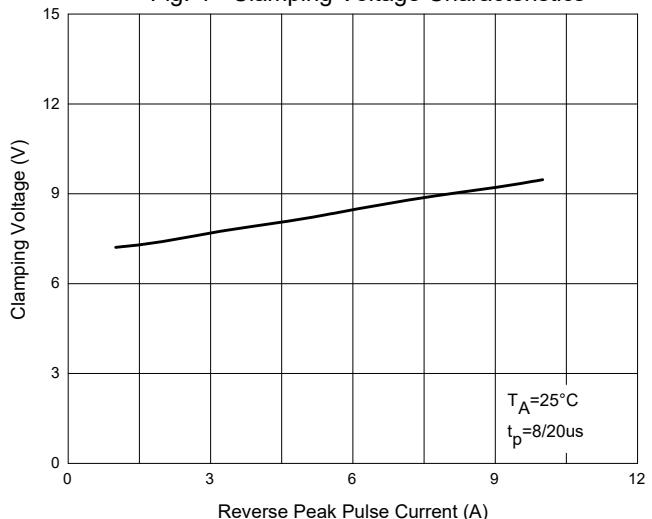


Fig. 5 - TLP Curve

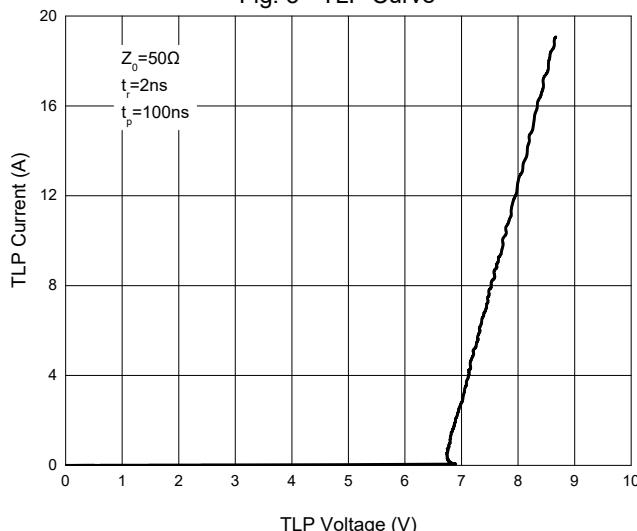
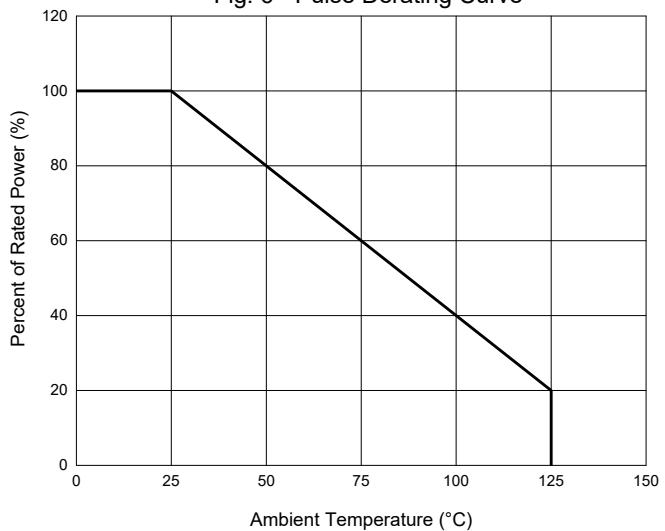


Fig. 6 - Pulse Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 10Kpcs/Reel

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