

**LOW CAPACITANCE BIDIRECTIONAL TVS DIODE**

**Features**

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±25kV, Contact ±15kV
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- Response time is Typically <1ns
- **Lead Free/RoHS Compliant**

**Mechanical Data**

- Case: 0402(DFN1006)
  - Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
  - Moisture Sensitivity: Level 1 per J-STD-020
  - Terminals: NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Prefix for Automotive and Other Application Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable



**Ordering Information**

Part Number	Case	Packaging
RSPR2PCFF	DFN1006	10,000/Tape & Reel

Notes:

1. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Circuit Diagram**



**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	$P_{PP}$	60	W	8/20 $\mu\text{s}$
Peak Pulse Current	$I_{PP}$	5	A	8/20 $\mu\text{s}$
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 15$	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 25$	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation	$P_D$	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Device	$V_{RWM}$ (V)	$I_R$ ( $\mu\text{A}$ ) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 2)	$I_T$	C (pF)	$V_C$ (V) @ $I_{PP} = 1\text{ A}$	$V_C$ (V) @ $I_{PP}\text{ Max}$
	Max	Max	Min	mA	pF	Max	Max
RSPR2PCFF	5.0	1.0	5.4	1.0	0.25	9.2	12.5

- $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^\circ\text{C}$ .
- Surge current waveform per Figure 4.
- For test procedure see Figures 3.

Rating and Characteristic Curves

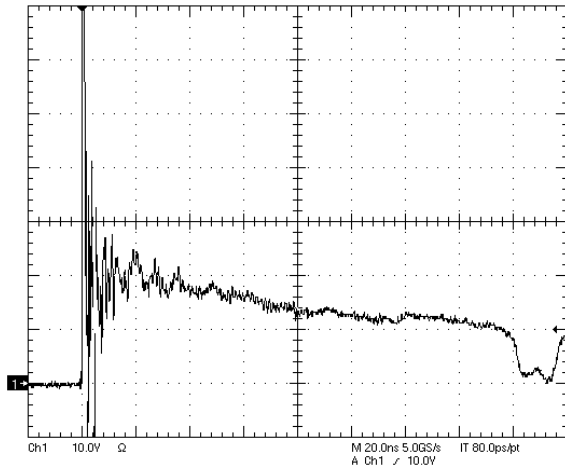


Figure 1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2

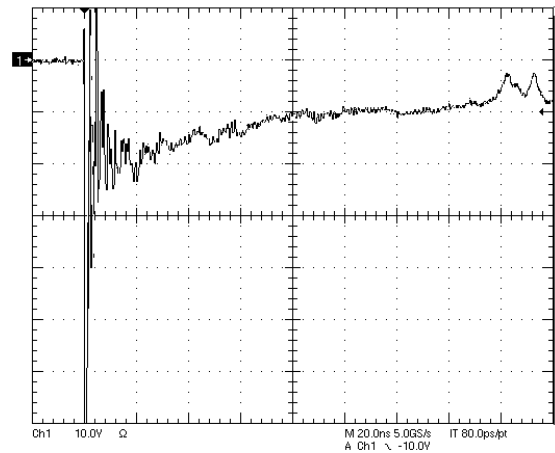


Figure 2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2

IEC 61000-4-2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

IEC61000-4-2 Waveform

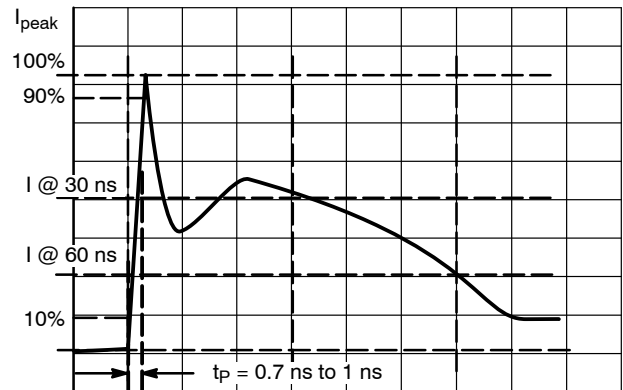


Figure 3. IEC61000-4-2 Spec

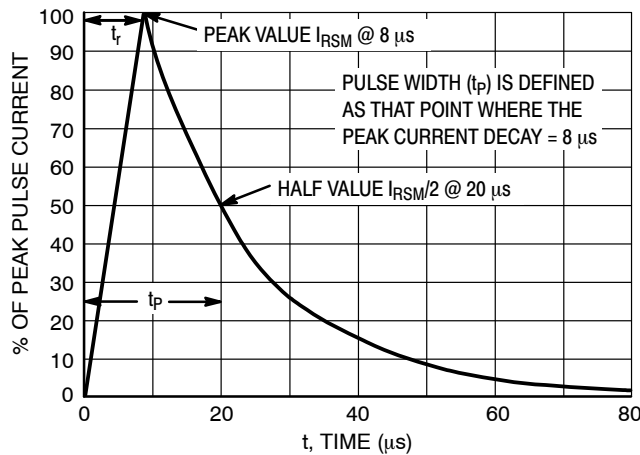
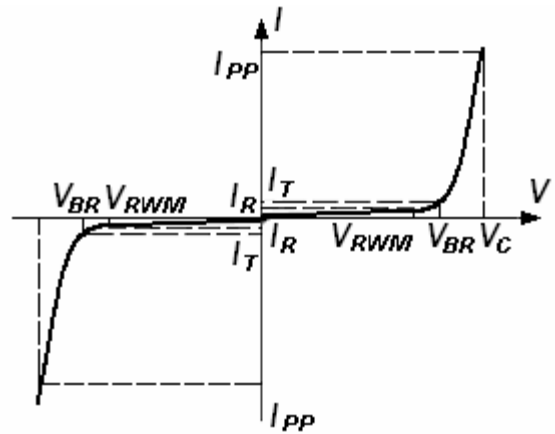


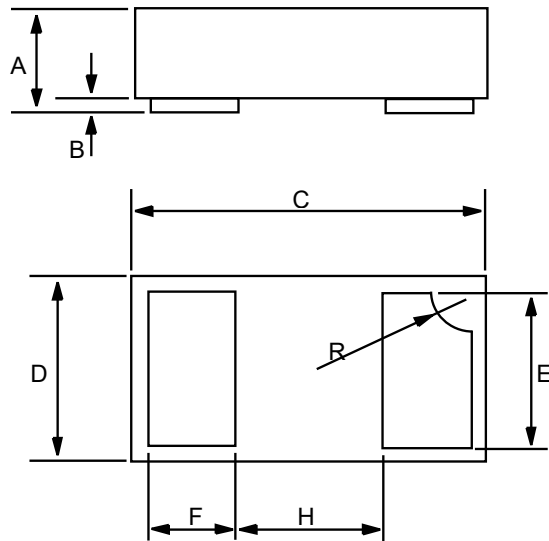
Figure 4. 8 X 20 μs Pulse Waveform

**Electrical Parameter**

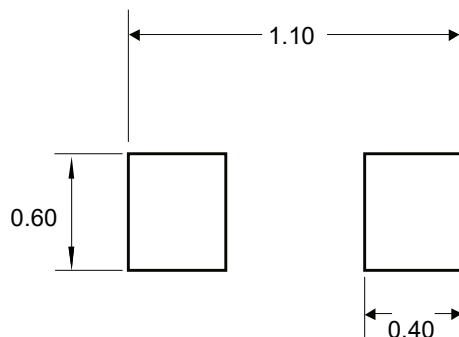
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$I_T$	Test Current
$V_{BR}$	Breakdown Voltage @ $I_T$



**Package Outline Dimensions**



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.013	0.020	0.34	0.50
B	0.000	0.002	0.00	0.05
C	0.037	0.043	0.95	1.080
D	0.022	0.027	0.55	0.680
E	0.016	0.024	0.40	0.60
F	0.008	0.012	0.20	0.30
H	0.015Typ.		0.40Typ.	
R	0.001	0.005	0.05	0.15



Unit:mm

**Suggested PCB Layout**