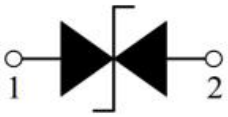
Bi-directional Transient Voltage Suppressors

Features

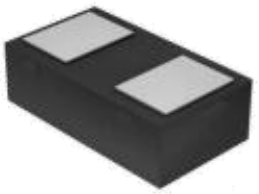
- Bi-directional ESD protection of 1 line
- Ultra Low Capacitance : 0.2 pF
- Working Voltage: 5V
- Low Leakage Current
- Response Time is Typically < 1 ns
- IEC 61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- Solid-state silicon-avalanche technology

Applications

- Cellular Handsets & Accessories
- Computers and Peripherals
- Digital Cameras
- Portable Electronics
- High speed data lines
- Audio and Video equipment
- Other electronics equipments



Circuit Diagram



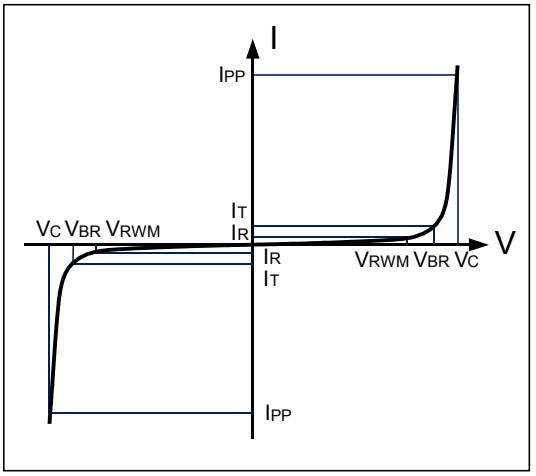
DFN1006(Bottom View)

Electrical Characteristics (T=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0	8.5	9.5	V
Reverse Leakage Current	I_R	V_{RWM}=5V, T=25℃			0.1	uA
Clamping Voltage	V_C	I_{PP}=1.0A, t_p=8/20μs			11	V
Clamping Voltage	V_C	I_{PP}=4.5A, t_p=8/20μs			22	V
Junction Capacitance	C_j	V_R=0V, f =1MHz		0.15	0.3	pF

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



V-I characteristics for a Bi-directional TVS

Absolute Maximum Ratings (T=25°C)

Symbol	Parameter	Value	Units
V_{ESD}	IEC61000-4-2 (ESD) Air discharge Contact discharge	±20 ±20	KV
P_{PP}	Peak Pulse Power (tp = 8/20 μ s)	70	W
I_{pp}	Peak Pulse Current (tp = 8/20 μ s)	4	A
T_L	Maximum lead temperature for soldering during 10s	260	°C
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_{op}	Operating Temperature Range	-55 to +125	°C
T_j	Maximum junction temperature	125	°C

Ordering information

Device	Package	Shipping
RST5323D	DFN1006	10000 / Tape&Reel

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

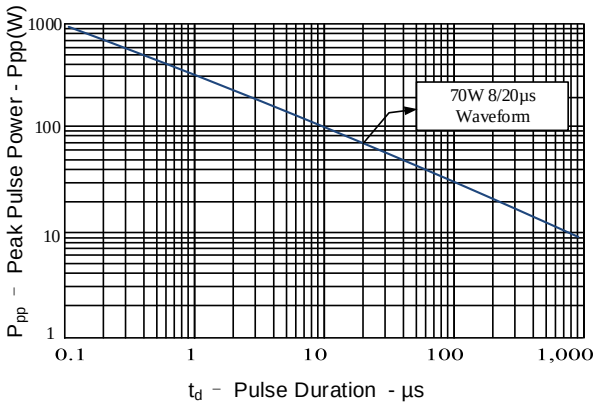


Figure 2: Power Derating Curve

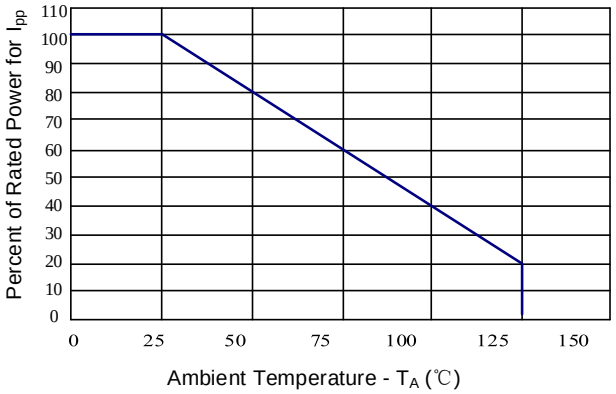


Figure 3: Clamping Voltage vs. Peak Pulse Current

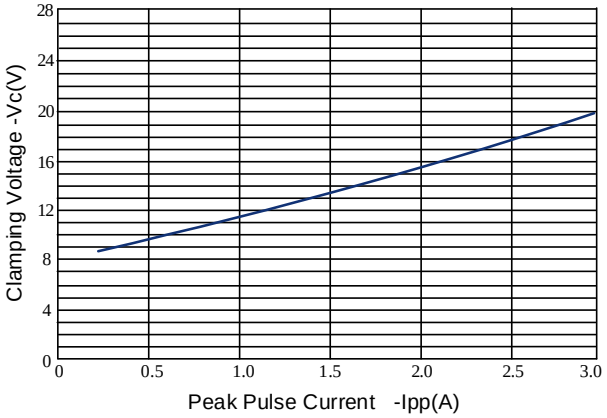


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

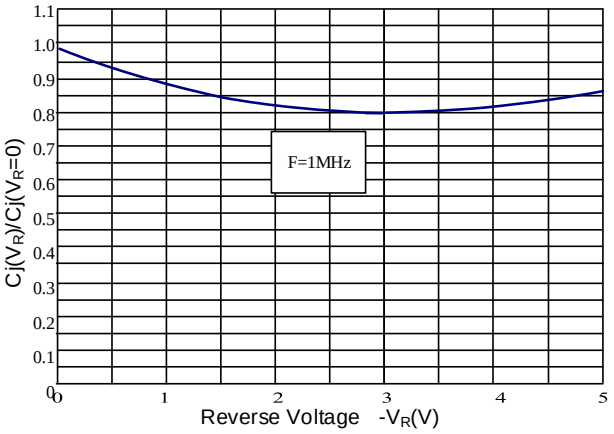


Figure 5: 8/20μs Pulse Waveform

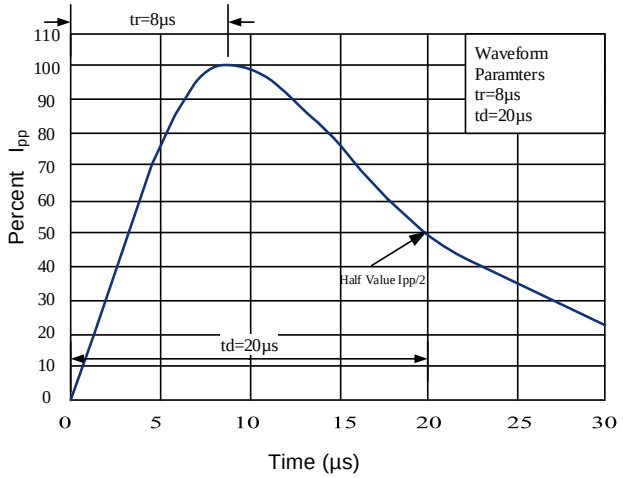
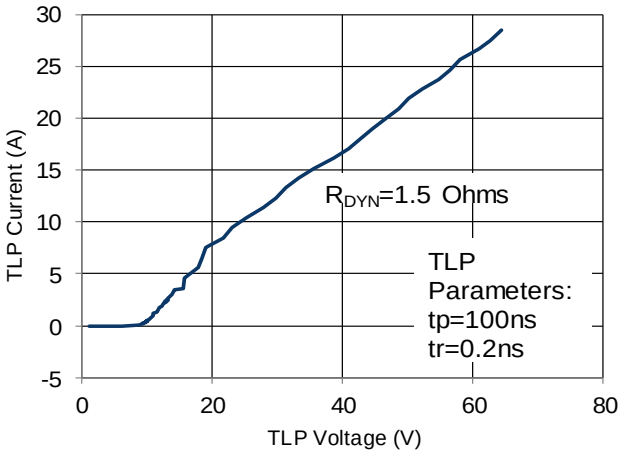
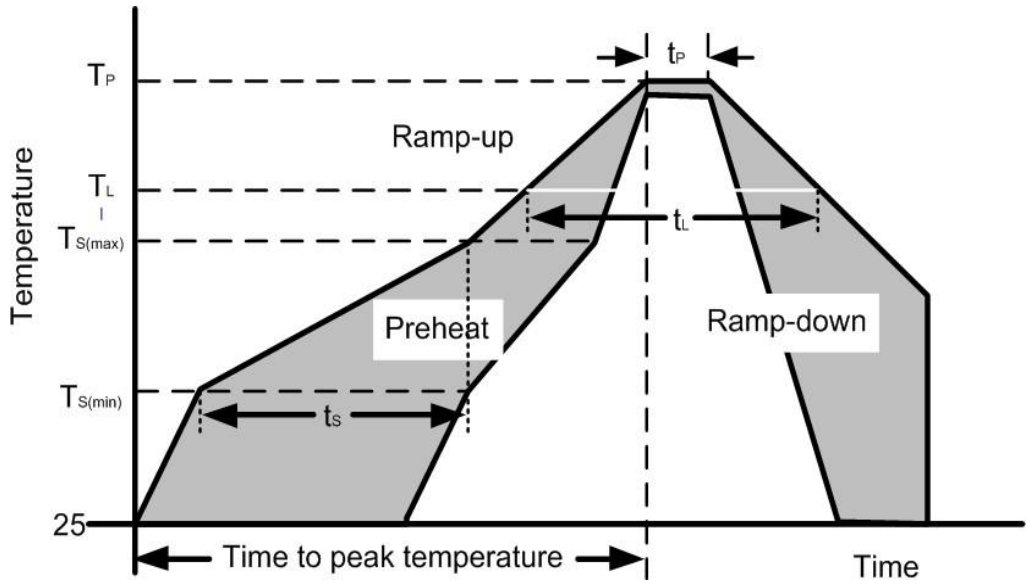


Figure 6: TLP I-V Curve



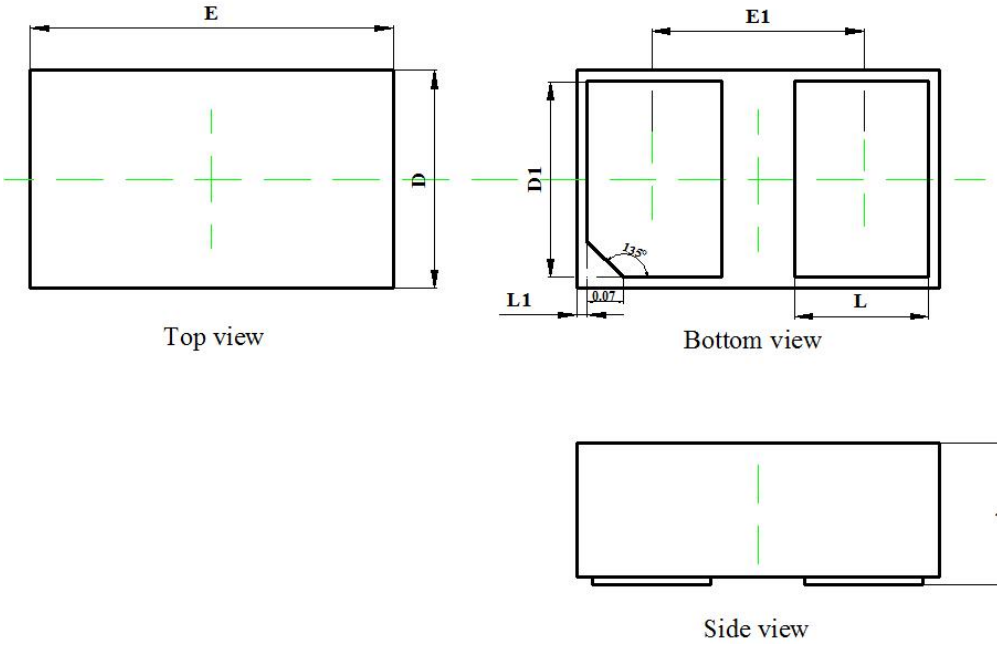
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L ——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Package Outline Dimensions

DFN1006



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
E	0.950	1.050	0.037	0.041
D1	0.420	0.520	0.017	0.020
E1	0.550	0.650	0.022	0.026
L	0.270	0.370	0.011	0.015
L1	0.000	0.100	0.000	0.004