LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±25kV, Contact ±25kV
- 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(DFP1006)
- 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

Lead-free Green

Ordering Information

Part Number	Case	Packaging
RS3PN5CW	DFP1006	10000/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°C unless otherwise specified

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	96	W	8/20μs
Peak Pulse Current	I_{PP}	8	A	8/20μs
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±25	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	±25	kV	IEC 61000-4-2 Standard

Thermal Characteristics

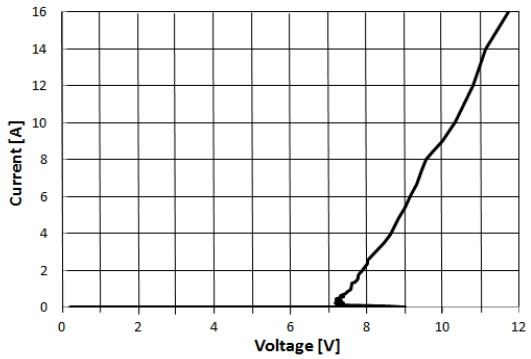
Characteristic	Symbol	Value	Unit
Package Power Dissipation	P_D	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

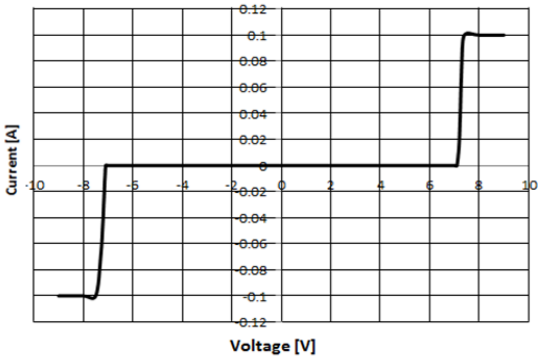
ITEM	Symbol	RS3PN5CW	Unit
Working Peak Reverse Voltage	V_{RWM}	3.3	V
Maximum Reverse Leakage (@V_{RWM}, 25℃) (Between I/O_1and I/O_2)	IR	Typ. 0.001 (Max. 0.08)	μA
Breakdown Voltage (@ IT=1mA) (Between I/O_1and I/O_2)	VBR	Min. 5.0	V
Clamping voltage (@IPP=16A, tp=100ns)	V_{CL}	10	V
Clamping voltage (@V_{ESD} = 8kV)	V_{CL}	10	V
Maximum Clamping Voltage (@IPP=1A, tp=8/20μs) (Between I/O_1and I/O_2)	VC	Max. 8	V
Maximum Clamping Voltage (@IPP=8A, tp=8/20μs) (Between I/O_1and I/O_2)	VC	Max. 10	V
Parasitic Capacitance (@VR=0V, f=1MHz) (Between I/O_1and I/O_2)	CESD	Typ. 8	pF

Rating and Characteristic Curves

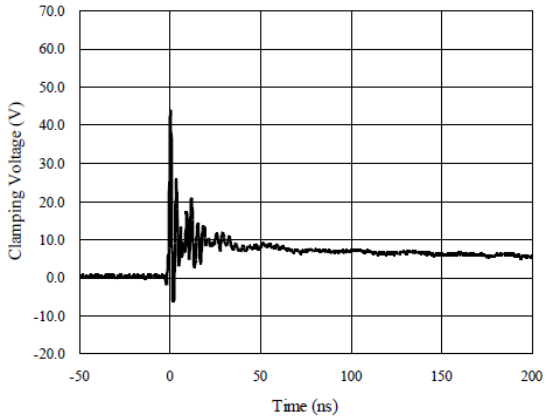
TLP Measurement



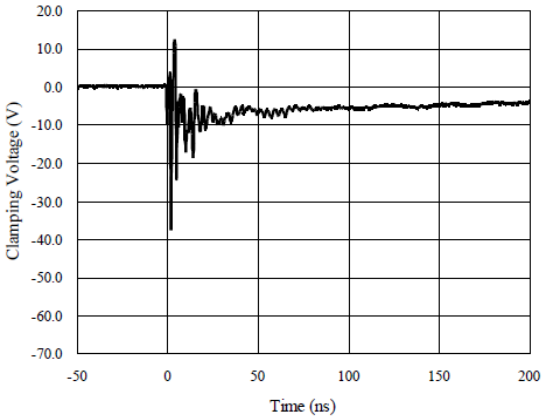
Voltage Sweeping of I/O_1 to I/O_2



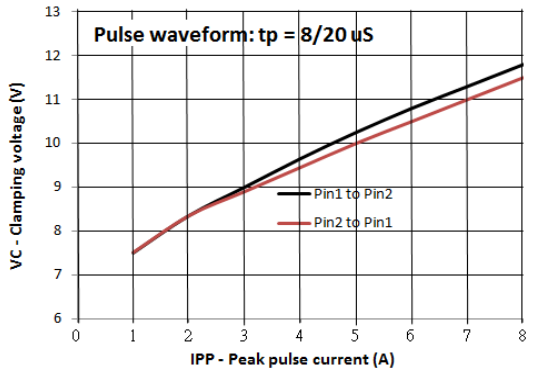
ESD Clamping of I/O_1 to I/O_2 (+8kV Contact per IEC 61000-4-2)



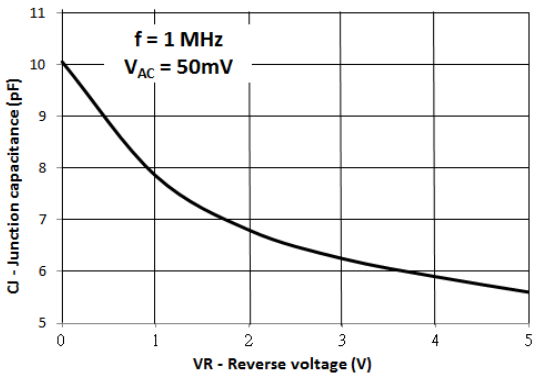
ESD Clamping of I/O_1 to I/O_2 (-8kV Contact per IEC 61000-4-2)



Clamping Voltage vs. Peak Pulse Current

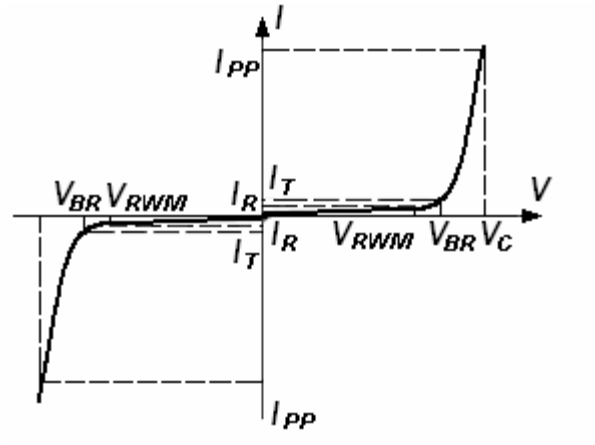


Capacitance vs. Reveres voltage



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

Model	0402 (DFP1006)
Length(L)	1.00 ±0.05
Width(W)	0.55 ±0.10
Thickness(T)	0.55 ±0.10
Termination(a)	0.25±0.05

Suggested Pad Layout

（Unit：mm）

	A	B	C	D
0402	0.4~0.5	1.4~1.8	0.55~0.65	0.4~0.7