Small Signal Product

Bi-directional ESD Protection Diode

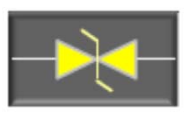
FEATURES

- Meet IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- Meet IEC61000-4-4 (EFT) rating. 40A (5/50μs)
- 100W peak pulse power per line (tp=8/20μs)
- Protects one bi-directional I/O line
- Working Voltage: 5V
- Packing code with suffix "G" means green compound (halogen free)

DFN1006 (0402)

Pb-Free

RoHS COMPLIANT



MECHANICAL DATA

- Case: DFN1006 (0402)
- Molding compound flammability rating: UL 94V-0
- Terminal: Gold plated, solderable per MIL-STD-750, method 2026
- High temperature soldering guaranteed : 260°C/10s
- Weight: 0.5 mg (approximately)
- Marking code: M

APPLICATIONS

- Cell Phone Handsets and Accessories
- Notebooks, Desktops, and Servers
- Keypads, Side Keys, LCD Displays
- Portable Instrumentation
- Touch Panel

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power (tp=8/20μs waveform)	P_{PP}	100	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	
Junction and Storage Temperature Range	T_J , T_{STG}	-55 to +150	°C

PARAMETER		SYMBOL	MIN	MAX	UNIT
Stand-Off Voltage		V_{WM}	-	5	V
Reverse Breakdown Voltage	I_R = 1 mA	$V_{(BR)}$	6	-	V
Reverse Leakage Current	V_{RWM} = 5 V	I_R	-	1	μA
Clamping Voltage	I_{PP} = 1 A	V_C	-	12.5	V
	I_{PP} = 2 A		-	20	
Junction Capacitance	V_R = 0 V , f = 1.0 MHz	C_J	10		pF

RATINGS AND CHARACTERISTICS CURVES

(T_A=25℃ unless otherwise noted)

Fig. 1 Admissible Power Derating Curve

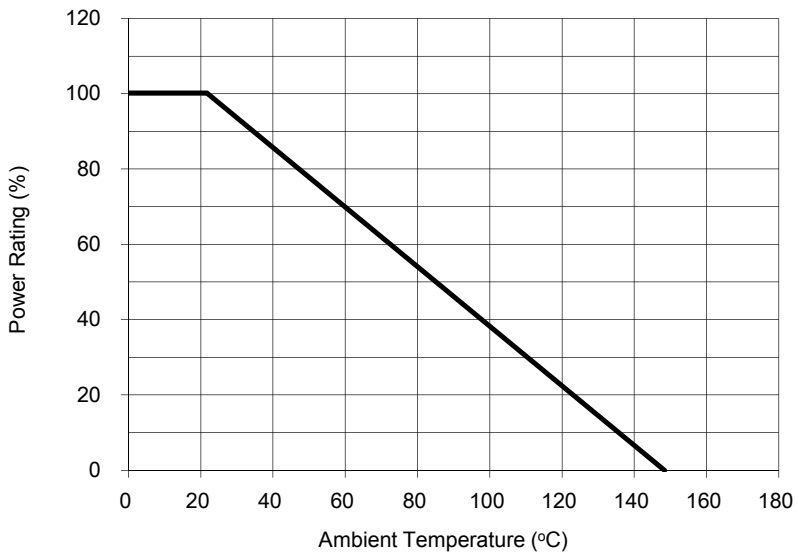


Fig. 2 Pulse Waveform

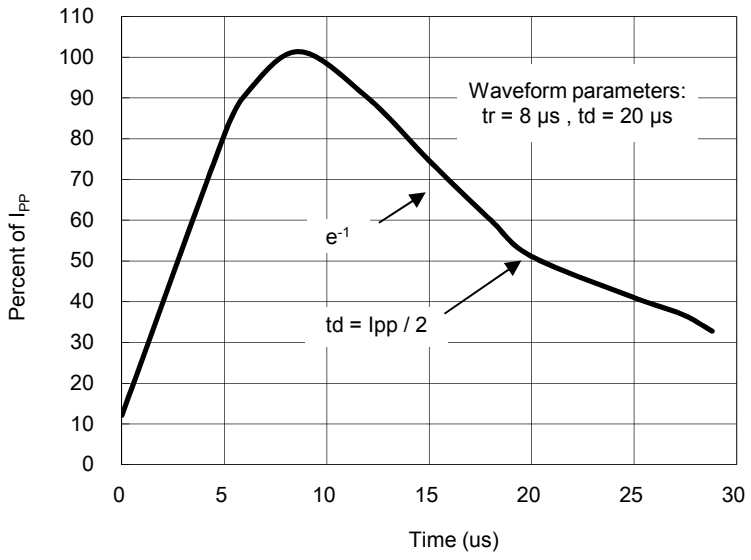


Fig. 3 Max. Clamping Voltage VS. Peak Pulse Current

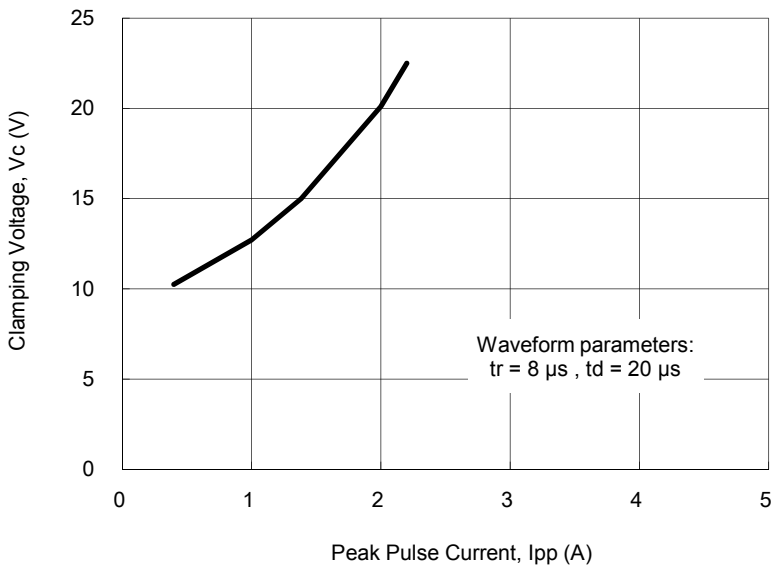
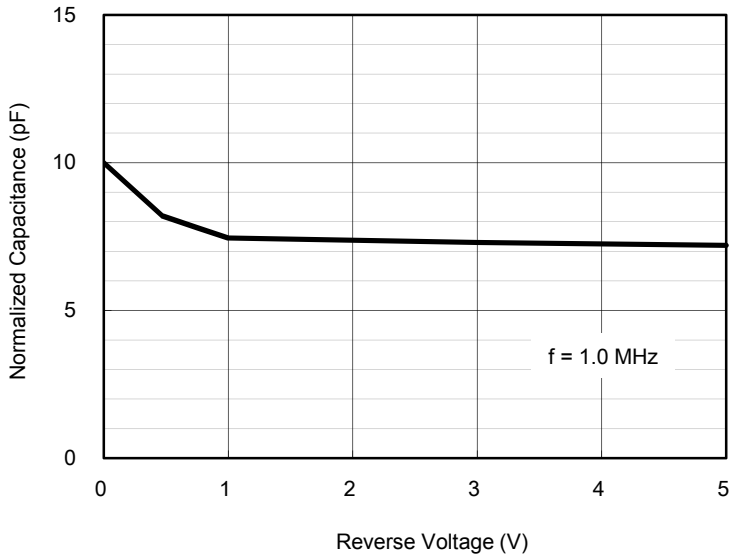


Fig. 4 Typical Junction Capacitance



Applications Information

◇ Designed to protect one data, I/O, or power supply line
◇ Designed to protect sensitive electronics from damage or latch-up due to ESD
◇ Designed to replace multilayer varistors (MLVs) in portable applications
◇ Features large cross-sectional area junctions for conducting, high transient currents
◇ Offers superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLV
◇ The combination of small size and high ESD surge capability makes them ideal for use in portable applications

Circuit Board Layout Recommendations

Good circuit board layout is critical for suppresion of ESD induced transients
◇ Place the ESD Protection Diode near the input terminals or connectors to restrict transient
◇ Minimize the path length between the ESD Protection Diode and the protected line
◇ Minimize all conductive loops including power and ground loops
◇ The ESD transient return path to ground should be kept as short as possible
◇ Never run critical signals near board edges
◇ Use ground planes whenever possible

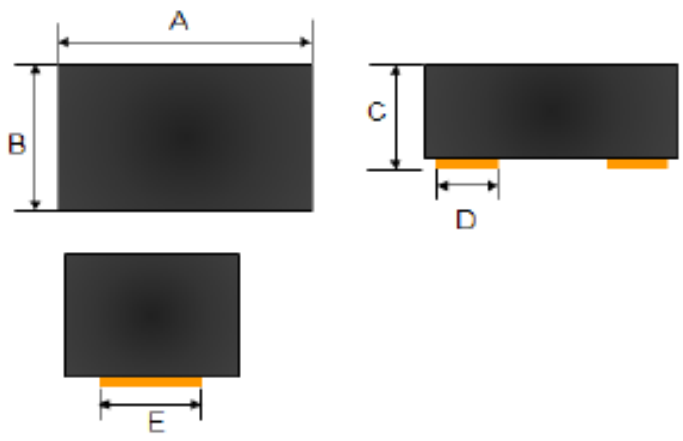
ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX (Note 1)	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TESDQ5V0	-xx	RJ	G	DFN1006 (0402)	10K / 7" Reel

Note 1: Part No. Suffix „-xx “ would be used for special requirement

EXAMPLE					
PREFERRED P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TESDQ5V0 RJG	TESDQ5V0		RJ	G	Multiple manufacture source Green compound
TESDQ5V0-E0 RJG	TESDQ5V0	-E0	RJ	G	Define manufacture source Green compound

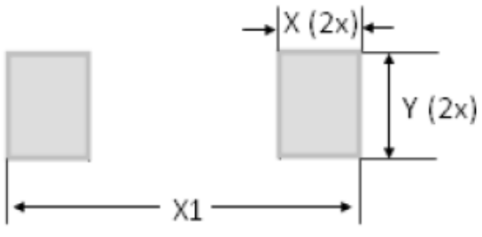
PACKAGE OUTLINE DIMENSION

DFN1006 (0402)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.45	0.55	0.018	0.022
D	0.30 TYP.		0.012 TYP.	
E	0.50 TYP.		0.020 TYP.	

SUGGEST PAD LAYOUT



DIM.	Unit (mm)	Unit (inch)
	TYP.	TYP.
X	0.354	0.014
X1	1.110	0.044
Y	0.354	0.014

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