

Small Signal 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 bidirectional I/O line
- ✧ Working Voltage : 5V
- ✧ Pb free version, RoHS compliant, and Halogen free

Mechanical Data

- ✧ Case : DFN1006(0402) 1.0mm x 0.6mm x 0.5mm package, molded plastic
- ✧ Molding Compound Flammability Rating: UL94V-0
- ✧ Terminal: Gold plated, solder per MIL-STD-750, Method 2026 guaranteed
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Mounting position: Any
- ✧ 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

Ordering Information

Part No.	Package	Packing	Marking
TESDQ5V0 RJG	DFN1006 (0402)	5K / 7" Reel	M

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

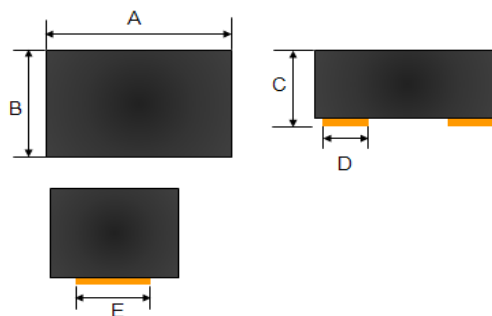
Maximum Ratings

Type Number	Symbol	Value	Units
Peak Pulse Power (tp=8/20µs waveform)	PPP	100	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	±15 ±8	KV
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to + 150	°C

Electrical Characteristics

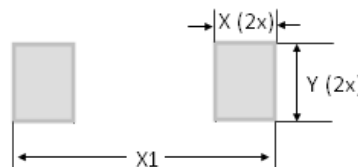
Type Number	Symbol	Min	Max	Units
Stand-Off Voltage	V _{WM}	-	5	V
Reverse Breakdown Voltage	I _R = 1mA V _(BR)	6	-	V
Reverse Leakage Current	V _R = 5V I _R	-	1	µA
Clamping Voltage	I _{PP} = 1A I _{PP} = 2A V _C	-	12.5	V
		-	20	
Junction Capacitance	V _R =0V, f=1.0MHz C _J	10 (Typ.)		pF

Notes: The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

DFN1006(0402)


Dimensions	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.950	1.050	0.037	0.041
B	0.550	0.650	0.022	0.026
C	0.450	0.550	0.018	0.022
D	0.275	0.325	0.011	0.013
E	0.275	0.325	0.011	0.013

Pin Configuration

Suggested PAD Layout


Dimensions	Value (in mm)
X	0.354
X1	1.110
Y	0.354

Small Signal Diode

Rating and Characteristic Curves

FIG 1 Admissible Power Derating Curve

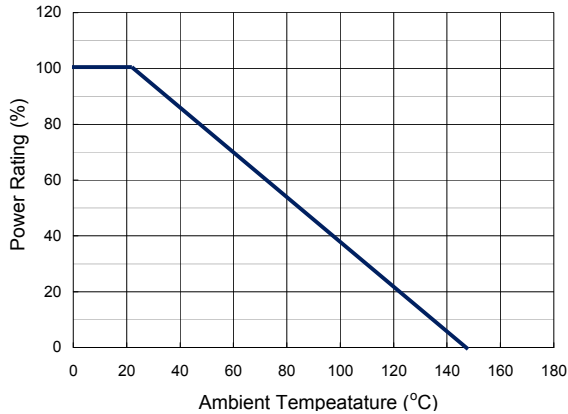


FIG 2 Pulse Waveform

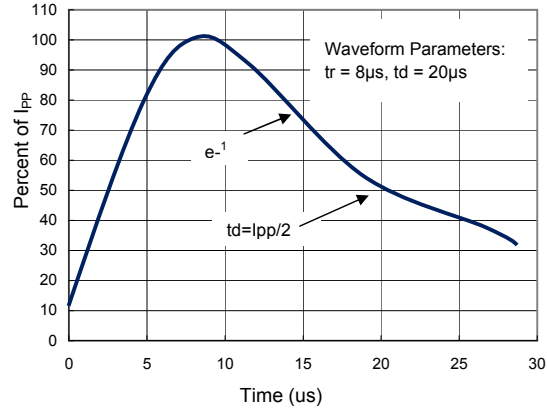


FIG 3 Max. Clamping Voltage vs. Peak Pulse

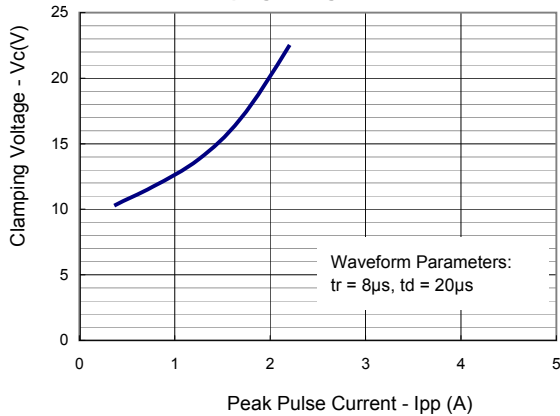
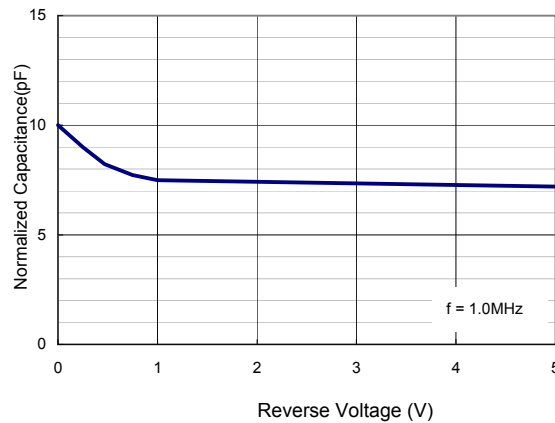


FIG 4 Typical Junction Capacitance



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 MLVs
- ✦ The combination of small size and high ESD surge capability makes them ideal for use in portable applications.

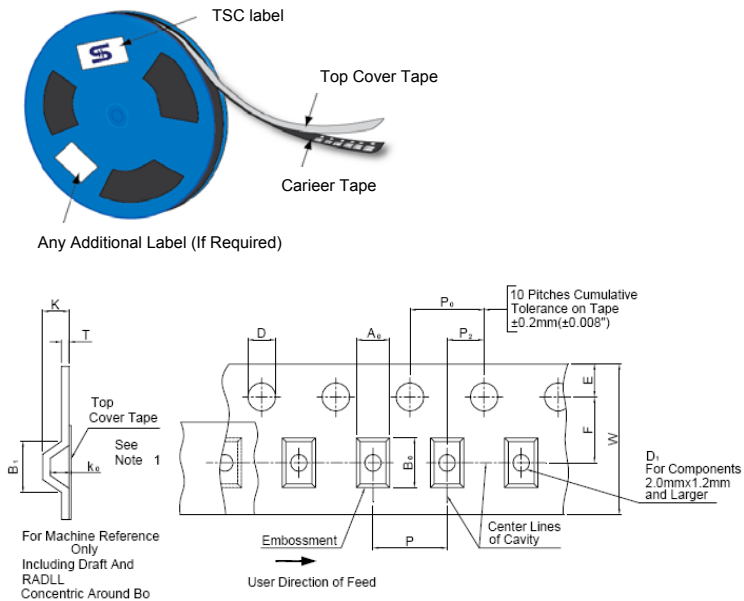
Circuit Board Layout Recommendations

Good circuit board layout is critical for the suppression of ESD induced transients.

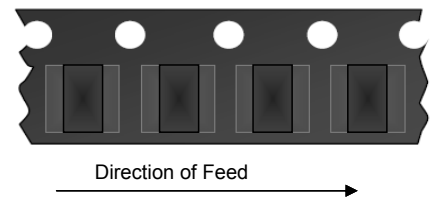
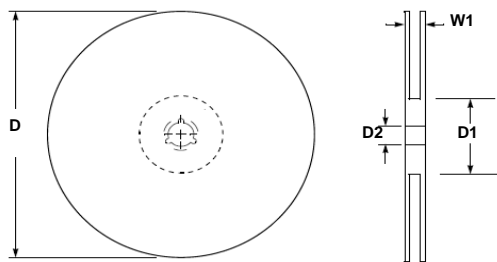
- ✦ Place the ESD Protection Diode near the input terminals or connectors to restrict transient
- ✦ Minimize the path length between the ESD Protection Diode and the protected line.
- ✦ Minimize all conductive loops including power and ground loops.
- ✦ The ESD transient return path to ground should be kept as short as possible.
- ✦ Never run critical signals near board edges.
- ✦ Use ground planes whenever possible.

Small Signal Diode

Carrier & Reel specification



Item	Symbol	Dimension(mm)
Carrier depth	K	1.2 Max.
Sprocket hole	D	1.50 +0.10
Reel outside diameter	A	178 ± 1
Reel inner diameter	D1	50 Min.
Feed hole width	D2	13.0 ± 0.5
Sprocket hole position	E	1.75 ± 0.10
Sprocket hole pitch	P0	4.00 ± 0.10
Embossment center	P1	2.00 ± 0.10
Overall tape thickness	T	0.6 Max.
Tape width	W	8.30 Max.
Reel width	W1	14.4 Max.



Note 1: A0, B0, and K0 are determined by component size. The clearance between the components and the cavity must be within 0.05 mm min. to 0.1 mm max. The component cannot rotate more than 10° within the determined cavity.

Note 2: If B1 exceeds 4.2 mm(0.165") for 8 mm embossed tape, the tape may not feed through all tape feeders.