

Small Signal Product

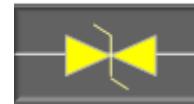
## Bi-directional ESD Protection Diode

### FEATURES

- Meet IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)
- Designed for mounting on small surface
- Protects one Bi-directional I/O line
- Moisture sensitivity level 1
- Working Voltage : 5V, 12V, 24V
- Pb free version and RoHS compliant
- Packing code with suffix "G" means green compound (halogen-free)



1005



### MECHANICAL DATA

- Case: 1005 small outline plastic package
- Terminal : Gold plated, solder per MIL-STD-705, method 2026 guaranteed
- High temperature soldering guaranteed :  $260^\circ\text{C}/10\text{s}$
- Weight:  $6 \pm 0.5\text{ mg}$

### APPLICATIONS

- Cell Phone Handsets and Accessories
- Notebooks, Desktops, and Servers
- Keypads, Side Keys, USB 2.0, LCD Displays
- Portable Instrumentation
- Touch Panel

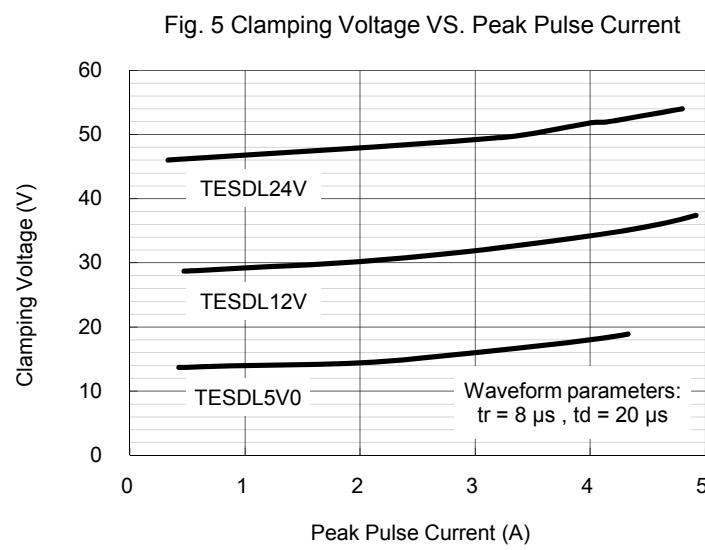
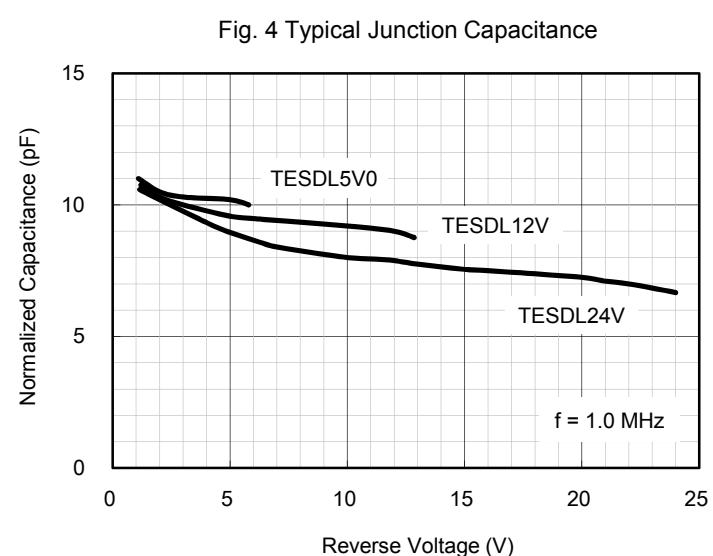
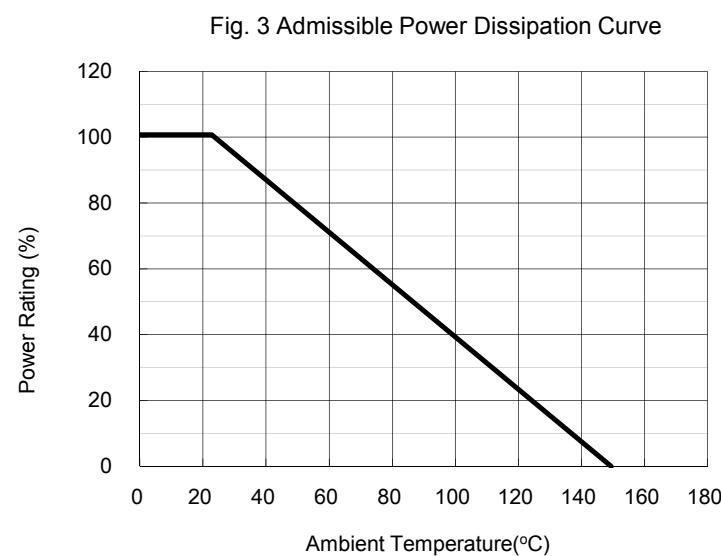
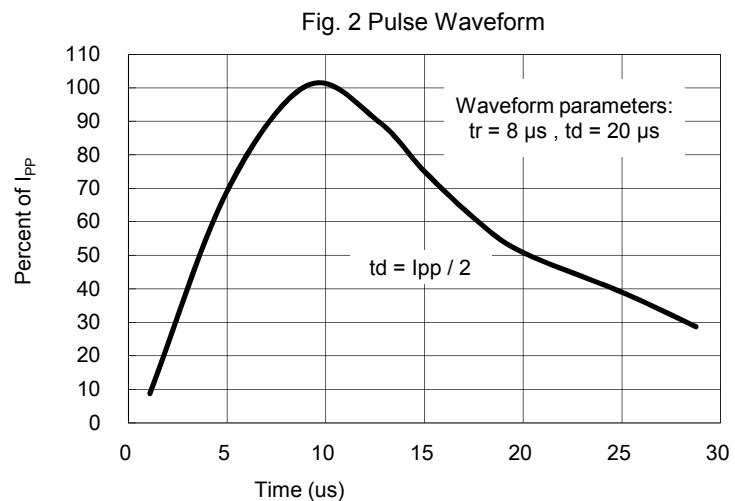
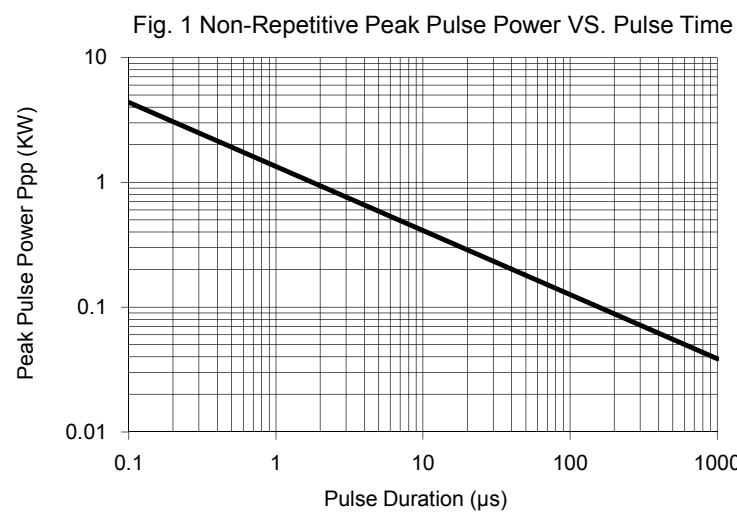
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	VALUE		UNIT
Peak Pulse Power ( $tp=8/20\mu\text{s}$ waveform)	P <sub>PP</sub>	75		W
		25		
		47		
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	$\pm 15$		KV
ESD per IEC 61000-4-2 (Contact)		$\pm 8$		
Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°C

PARAMETER	SYMBOL	MIN	MAX	UNIT	
Reverse Stand-Off Voltage	V <sub>RWM</sub>	-	5	V	
TESDL5V0		-	12		
TESDL12V		-	24		
Reverse Breakdown Voltage	V <sub>(BR)</sub>	5.1	-	V	
TESDL5V0		13	-		
TESDL12V		25	-		
Reverse Leakage Current	I <sub>R</sub>	$V_R = 5\text{ V}$		$\mu\text{A}$	
TESDL5V0		$V_R = 12\text{ V}$			
TESDL12V		$V_R = 24\text{ V}$			
Clamping Voltage	I <sub>PP</sub> = 1 A	-	9.8	V	
TESDL5V0		-	15		
Clamping Voltage	I <sub>PP</sub> = 5 A	-	25	V	
TESDL12V		-	33		
Clamping Voltage	I <sub>PP</sub> = 1 A	-	47	V	
TESDL24V		-	51		
Junction Capacitance	C <sub>J</sub>	$V_R = 0\text{ V}$		pF	
TESDL5V0		$f = 1.0\text{ MHz}$			
TESDL12V		15			
TESDL24V		12			
		10			

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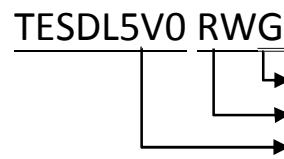
### RATINGS AND CHARACTERISTICS CURVES

( $T_A=25^\circ\text{C}$  unless otherwise noted)



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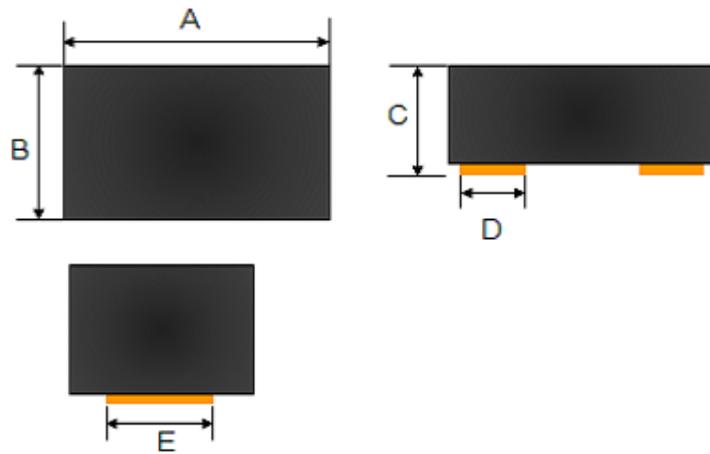
### ORDER INFORMATION (EXAMPLE)



Green compound code  
Packing code  
Part no.

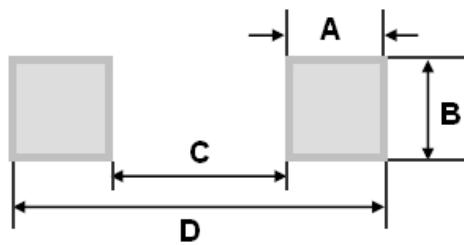
### PACKAGE OUTLINE DIMENSIONS

1005



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.40	2.60	0.094	0.102
B	1.10	1.30	0.043	0.051
C	0.70	0.90	0.028	0.035
D	0.50 (Typ.)		0.020 (Typ.)	
E	1.00 (Typ.)		0.040 (Typ.)	

### SUGGEST PAD LAYOUT



DIM.	Unit (mm)		Unit (inch)	
	Typ.	Typ.	Typ.	Typ.
A	0.70		0.028	
B	1.30		0.051	
C	1.30		0.051	
D	2.70		0.106	

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

### MARKING

Part No.	Marking
TESDL5V0	E05
TESDL12V	E12
TESDL24V	E24

## Small Signal Product

## APPLICATION 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 coupling
- 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

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