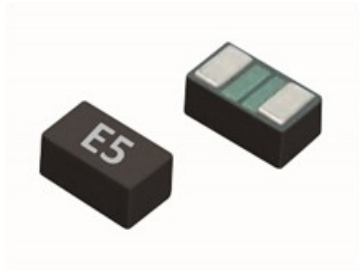


## Surface Mount ESD Suppressors

### ESD Protection Diode, TS04021C05V100



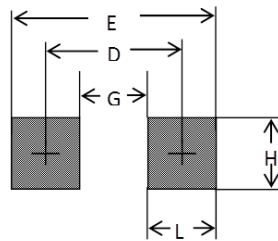
#### Application:

- Cellular handsets and accessories
- Portable electronics
- Computers and peripherals
- Communication systems
- Audio and video equipment

#### Features:

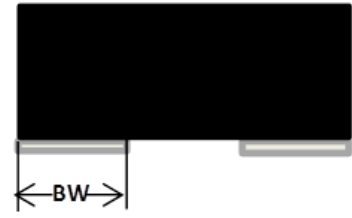
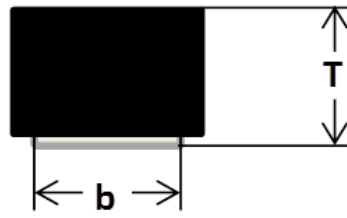
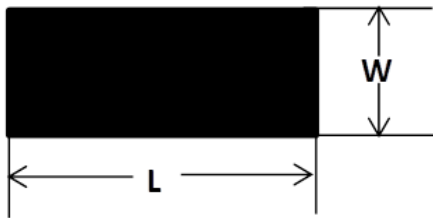
- Bi-directional ESD protection of one line.
- IEC 61000-4-2, level 4 (ESD) protection
- Ultra small SMD special packages (0402)
- Pb-Free, Halogen free and RoHS compliant
- Operating junction temperature  $-55^{\circ}\text{C}\sim+125^{\circ}\text{C}$
- Storage temperature range  $-55^{\circ}\text{C}\sim+150^{\circ}\text{C}$

#### Recommended Foot Print Dimensions:



Unit	Inch	mm
L	0.020	0.50
G	0.010	0.25
H	0.028	0.70
D	0.030	0.75
E	0.049	1.25

#### Shape and Dimensions:



Package	Size Inch/(mm)				
	L	W	T	BW	b
<b>0402 (DFN1006)</b>	0.039±0.002 (1.00±0.05)	0.024±0.002 (0.60±0.05)	0.020±0.002 (0.50±0.05)	0.014 (0.35)	0.020 (0.50)

#### Packaging Information:

Package	Tape & Reel Quantity (piece)	Marking
<b>0402 (DFN1006)</b>	10,000	E5

#### Storage Conditions:

Storage Time: 12 months max  
 Storage Temperature :  $5^{\circ}\text{C}$  to  $30^{\circ}\text{C}$   
 Relative Humidity: < 60% RH

# Surface Mount ESD Suppressors

## ESD Protection Diode, TS04021C05V100

### Electrical Characteristics (@25°C):

Characteristic	Condition	Value		
		Min.	Typical	Max.
ESD per IEC61000-4-2 Direct Discharge			±8 kV	
ESD per IEC61000-4-2 Air Discharge			±16 kV	
Peak Pulse Power ( $P_{PK}$ )	$t_P = 8/20\mu s$		75 W	
Maximum Peak Pulse Current ( $I_{PP}$ )	$t_P = 8/20\mu s$		5 A	
Reverse Stand-Off Voltage ( $V_{RWM}$ )				5 V
Reverse Breakdown Voltage ( $V_{BV}$ )	$I_{BV} = 1mA$	6 V		
Clamping Voltage ( $V_{CL}$ )	$I_{PP} = 1A, t_P = 8/20\mu s$			9 V
	$I_{PP} = 5A, t_P = 8/20\mu s$			15 V
Junction Capacitance ( $C_J$ )	$V_{RWM} = 0V, f = 1MHz$		10 pF	
Reverse Leakage Current ( $I_{RM}$ )	$V_{RWM} = 5V$			2 $\mu A$

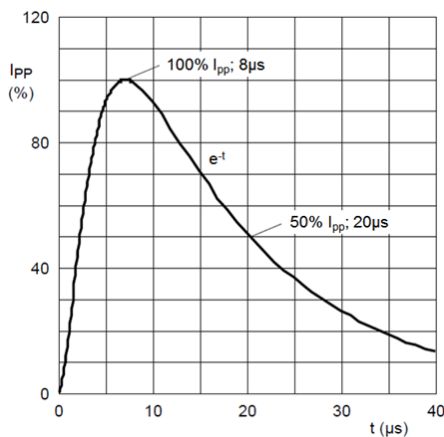


Fig. 1  
8/20 $\mu s$  pulse waveform  
according to IEC 61000-4-5

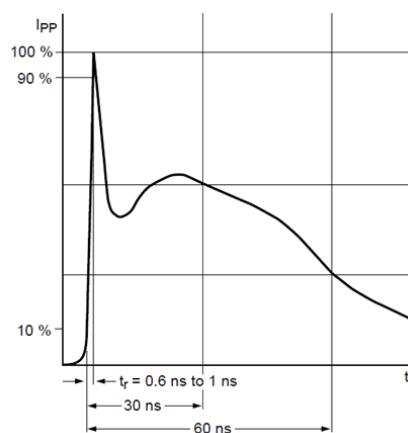


Fig. 2  
ESD pulse waveform  
according to IEC 61000-4-2

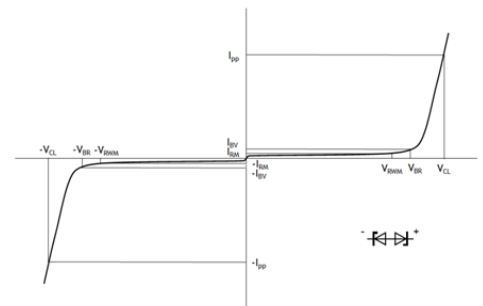


Fig. 3  
V-I characteristics for bidirectional ESD  
protection diode

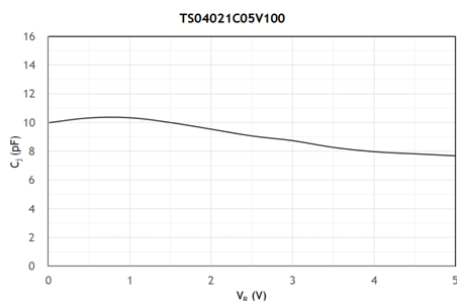


Fig. 4  
Junction capacitance as a function of  
reverse voltage; typical value

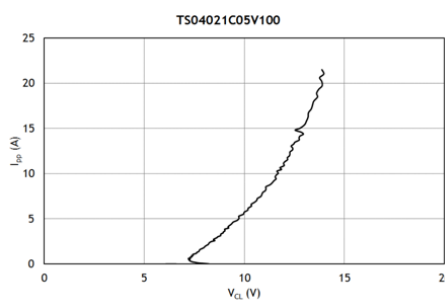


Fig. 5  
Dynamic resistance with positive  
clamping voltage  $t_P = 10ns$ ;  
Transmission Line Pulse (TLP)

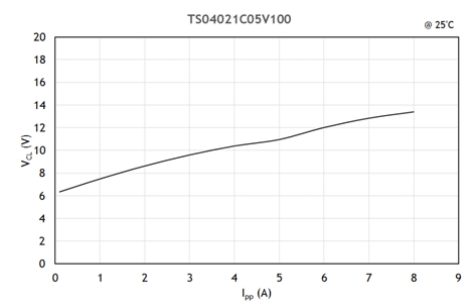


Fig. 6  
Clamping voltage ( $V_{CL}$ ) as a function of  
peak current ( $I_{PP}$ );  $t_P = 8/20\mu s$

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