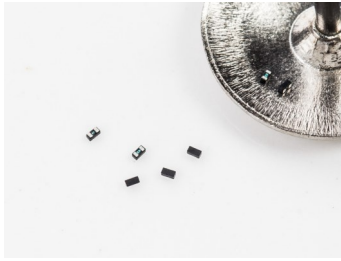


## Surface Mount TVS Diodes

### ESD Protection Diode, TS02011C05V3R0



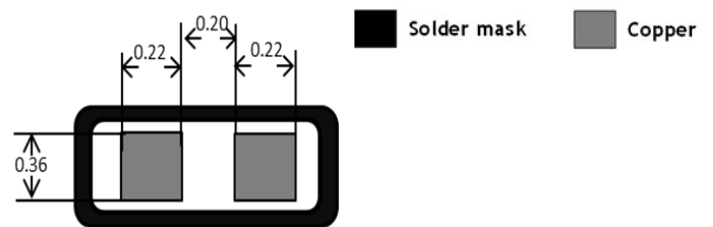
#### Applications:

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

#### Features:

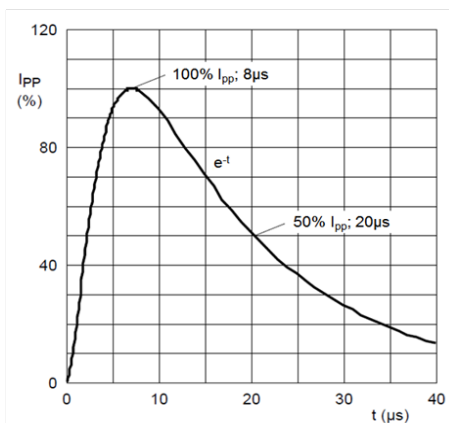
- Bi-directional ESD protection of one line
- Low capacitance (3 pF typical)
- IEC 61000-4-2, level 4 (ESD) protection
- Ultra small SMD special package (0201)
- Pb-Free, Halogen free/BFR free and RoHS compliant
- Operating temperature range  $-55^{\circ}\text{C}\sim+125^{\circ}\text{C}$
- Storage temperature range  $-55^{\circ}\text{C}\sim+150^{\circ}\text{C}$

#### Recommended Foot Print Dimensions:

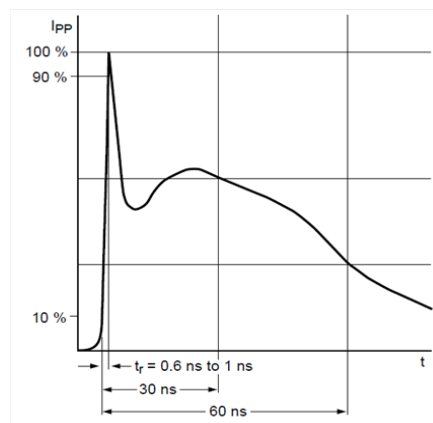


#### Electrical Characteristics (@25°C):

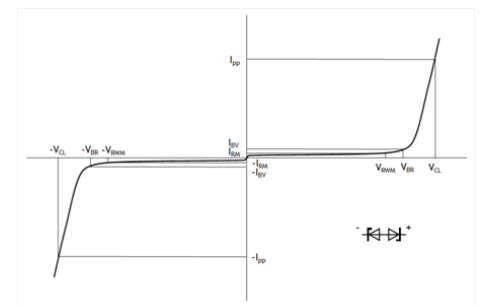
| Characteristic                          | Condition                                   | Value |             |                 |
|---|---|-------|-------------|-----------------|
|   |   | Min.  | Typical     | Max.            |
| ESD per IEC61000-4-2 Direct Discharge   |   |       | $\pm 8$ kV  |                 |
| ESD per IEC61000-4-2 Air Discharge      |   |       | $\pm 15$ kV |                 |
| Peak Pulse Power ( $P_{PK}$ )           |   |       | 75 W        |                 |
| Reverse Stand-Off Voltage ( $V_{RWM}$ ) |   |       |             | 5 V             |
| Reverse Breakdown Voltage ( $V_{BV}$ )  | $I_{BV} = 1\text{mA}$                       | 5.6 V |             | 9 V             |
| Clamping Voltage ( $V_{CL}$ )           | $I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$ |       |             | 12 V            |
|   | $I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$ |       |             | 15 V            |
| Junction Capacitance ( $C_j$ )          | $V_{RWM} = 0\text{V}, f = 1\text{MHz}$      |       | 3 pF        |                 |
| Reverse Leakage Current ( $I_{RM}$ )    | $V_{RWM} = 5\text{V}$                       |       |             | 1 $\mu\text{A}$ |



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



**Fig. 2**  
ESD pulse waveform  
according to IEC 61000-4-5

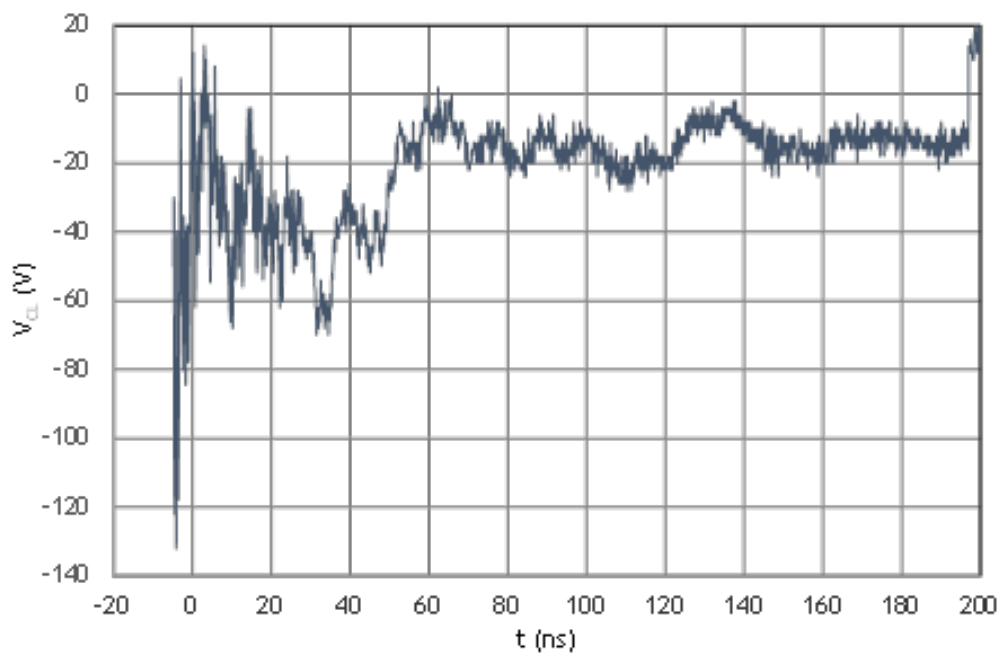
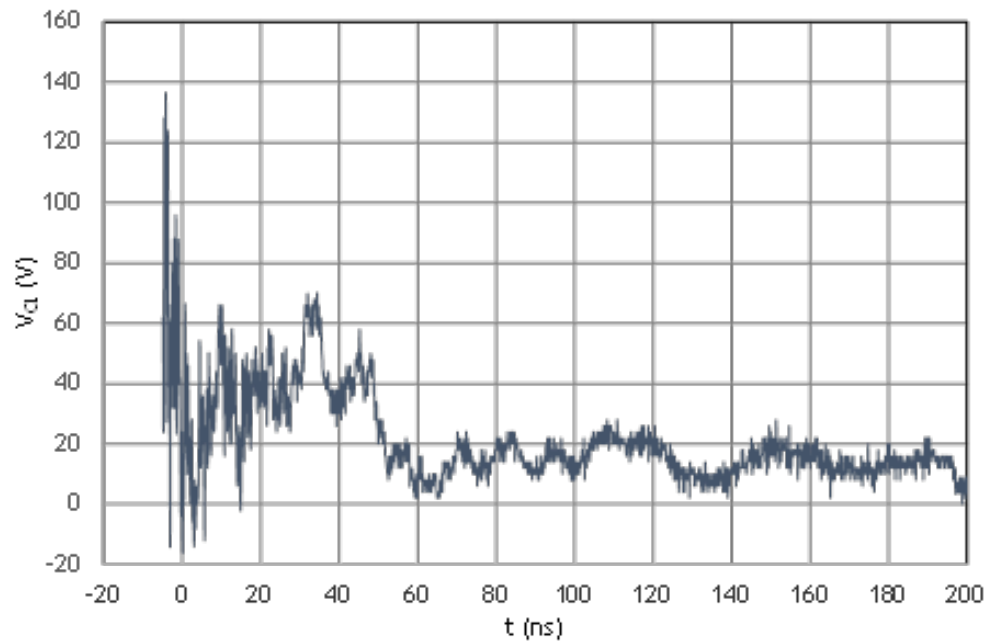


**Fig. 3**  
V-I characteristics for bidirectional ESD protection diode

## Surface Mount TVS Diodes

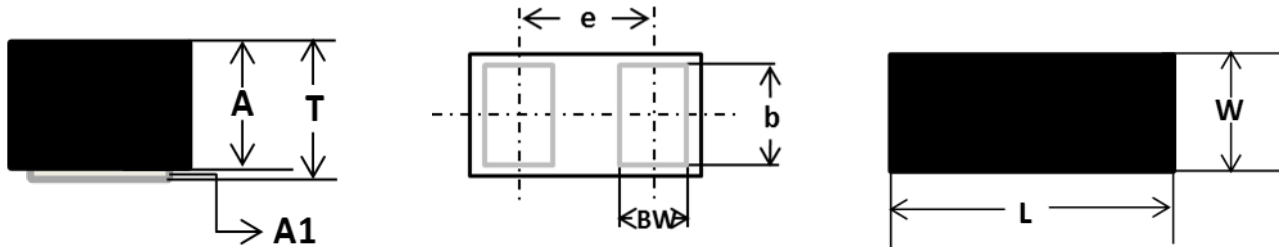
ESD Protection Diode, TS02011C05V3R0

### Clamped Pulse Waveform per IEC61000-4-2 Level 4, $\pm 8\text{kV}$ Direct Discharge:



## Surface Mount TVS Diodes

### Shape and Dimensions:



| Package                         | Size inch/(mm)             |                            |                            |                            |                            |                 |                            |                  |
|---------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------|----------------------------|------------------|
|                                 | L                          | W                          | T                          | BW                         | b                          | e               | A                          | A1               |
| <b>0201</b><br><b>(DN0603)</b>  | 0.024±0.002<br>(0.60±0.05) | 0.013±0.002<br>(0.32±0.05) | 0.012±0.002<br>(0.30±0.05) | 0.006±0.002<br>(0.15±0.05) | 0.010±0.002<br>(0.25±0.05) | 0.015<br>(0.38) | 0.011±0.002<br>(0.29±0.05) | 0.0004<br>(0.01) |
| <b>0402</b><br><b>(DFN1006)</b> | 0.039±0.002<br>(1.00±0.05) | 0.024±0.002<br>(0.60±0.05) | 0.020±0.002<br>(0.50±0.05) | 0.014±0.002<br>(0.35±0.05) | 0.020±0.002<br>(0.50±0.05) | 0.026<br>(0.65) | 0.019±0.002<br>(0.49±0.05) | 0.0004<br>(0.01) |

### Packaging Information:

| Package                       | Tape & Reel Quantity (piece) | Marking |
|-------------------------------|------------------------------|---------|
| 0201 (DFN0603)                | 15,000                       | I       |
| 0402 (DFN1006)—TS04021C05V100 | 10,000                       | E5      |
| 0402 (DFN1006)—TS04021C05VR30 | 10,000                       | S       |

### Storage Conditions:

Storage Time: 12 months max

Storage Temperature : 5°C to 30°C

Relative Humidity: < 60% RH

## Disclaimer

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