

## Features

- ESD Protection of One Line
- Ultra Low Capacitance
- Low Clamping Voltage
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

|  |                  |                 |
|--|------------------|-----------------|
| IEC61000-4-2 (ESD)                           | Air              | ±20KV           |
|  | Contact          | ±15KV           |
| Peak Pulse Current (8/20µs)                  | I <sub>PP</sub>  | 3.5A            |
| Peak Pulse Power (8/20µs) <sup>(Note2)</sup> | P <sub>PK</sub>  | 70W             |
| Operating Junction Temperature Range         | T <sub>J</sub>   | -55°C to +125°C |
| Storage Temperature Range                    | T <sub>STG</sub> | -55°C to +150°C |

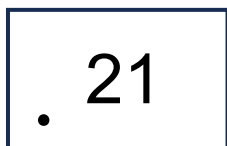
Note :

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Non-repetitive current pulse 8/20 µs exponential decay waveform according to IEC61000-4-5.

### Internal Structure

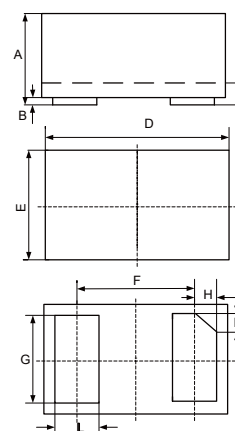


### Marking Code



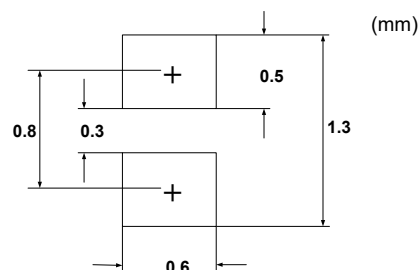
# ESD Protection Device

## CSP1006-2

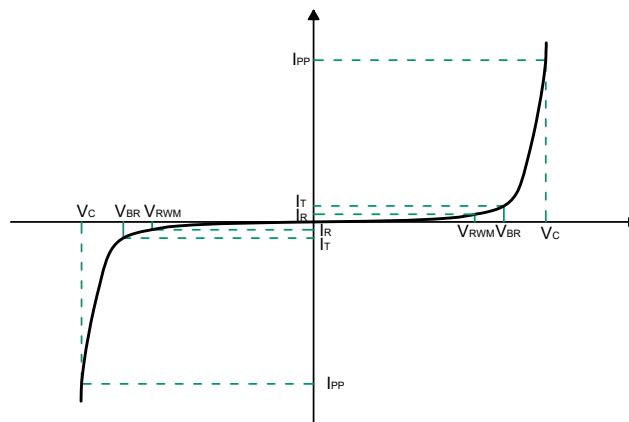


| DIM | DIMENSIONS |       |       |      | NOTE |
|-----|------------|-------|-------|------|------|
|     | INCHES     |       | MM    |      |      |
|     | MIN        | MAX   | MIN   | MAX  |      |
| A   | 0.016      | 0.022 | 0.40  | 0.55 |      |
| B   | 0.000      | 0.002 | 0.00  | 0.05 |      |
| C   | 0.005      | 0.007 | 0.12  | 0.18 |      |
| D   | 0.037      | 0.041 | 0.95  | 1.05 |      |
| E   | 0.022      | 0.026 | 0.55  | 0.65 |      |
| F   | 0.026      |       | 0.650 |      | TYP. |
| G   | 0.018      | 0.022 | 0.45  | 0.55 |      |
| H   | 0.003      | 0.007 | 0.07  | 0.17 |      |
| L   | 0.008      | 0.012 | 0.20  | 0.30 |      |

### SUGGESTED SOLDER PAD LAYOUT



| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_{RWM}$ | Peak Reverse Working Voltage        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | Test Current                        |
| $I_{PP}$  | Maximum Reverse Peak Pulse Current  |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $P_{PK}$  | Peak Pulse Power                    |
| $C_J$     | Junction Capacitance                |



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

| Parameter                           | Symbol    | Conditions                   | Min. | Typ. | Max. | Units    |
|-------------------------------------|-----------|------------------------------|------|------|------|----------|
| Reverse Working Voltage             | $V_{RWM}$ |                              |      |      | 5    | V        |
| Reverse Breakdown Voltage           | $V_{BR}$  | $I_T=1mA$                    | 6    |      | 9    | V        |
| Reverse Leakage Current             | $I_R$     | $V_{RWM}=5V$                 |      |      | 0.2  | $\mu A$  |
| Clamping Voltage <sup>Note1</sup>   | $V_C$     | $I_{PP}=1A, t_p=8/20\mu s$   |      | 10   | 12   | V        |
| Clamping Voltage <sup>Note1</sup>   | $V_C$     | $I_{PP}=3.5A, t_p=8/20\mu s$ |      | 17   | 20   | V        |
| Junction Capacitance                | $C_J$     | $V_R=0V, f=1MHz$             |      | 0.3  | 0.5  | pF       |
| Dynamic Resistance <sup>Note2</sup> | $R_{DYN}$ | TLP, $t_p=100ns$             |      | 1    |      | $\Omega$ |

Note :

1.Non-repetitive current pulse 8/20 $\mu s$  exponential decay waveform according to IEC61000-4-5.

2.TLP parameter:  $Z_0=50\Omega, t_p=100ns, t_r=2ns$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

## Curve Characteristics

Fig. 1 - 8 X 20 $\mu$ s Pulse Waveform

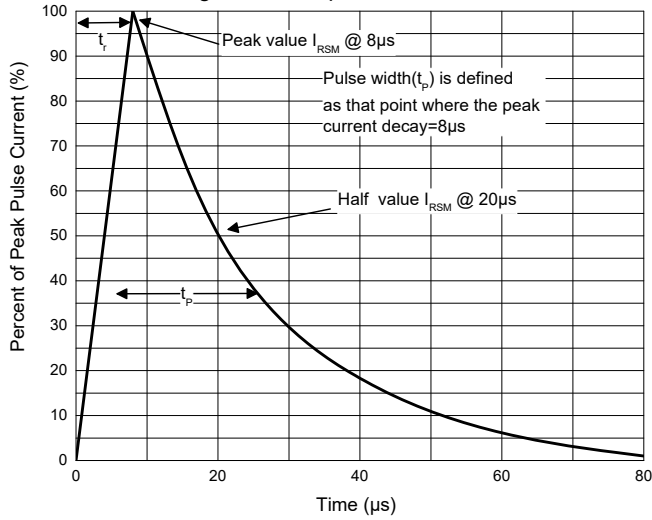


Fig. 2 - Non-Repetitive Peak Pulse Power

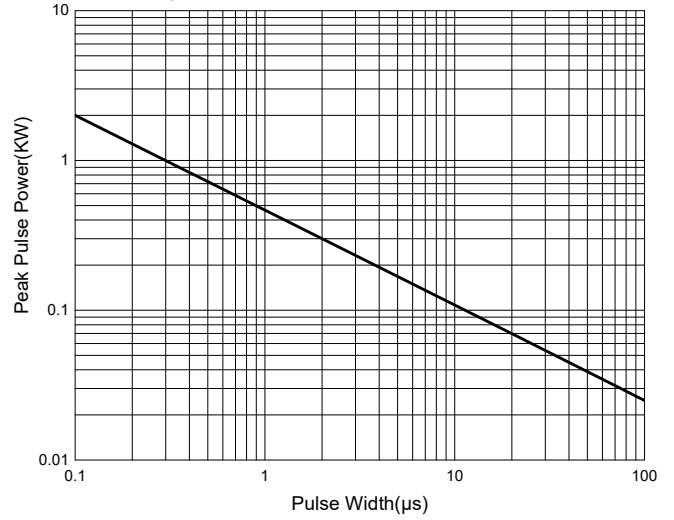


Fig. 3 - Capacitance Characteristics

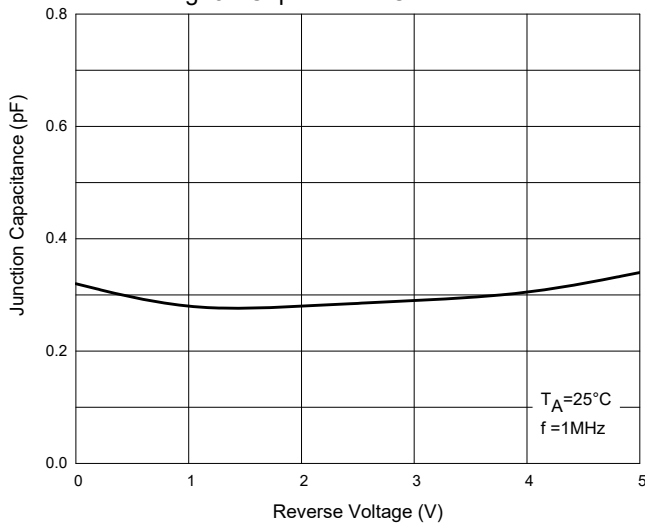


Fig. 4 - Clamping Voltage Characteristics

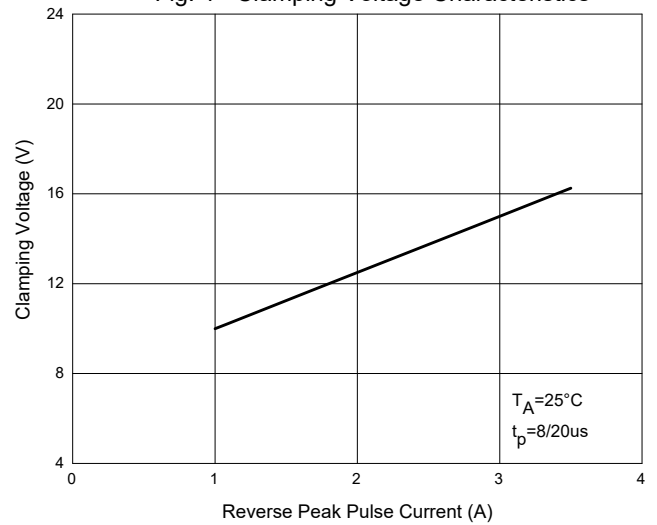


Fig. 5 - TLP Curve

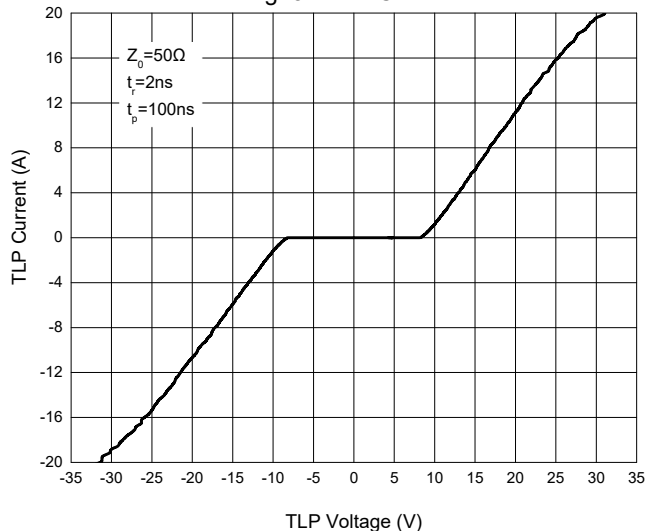
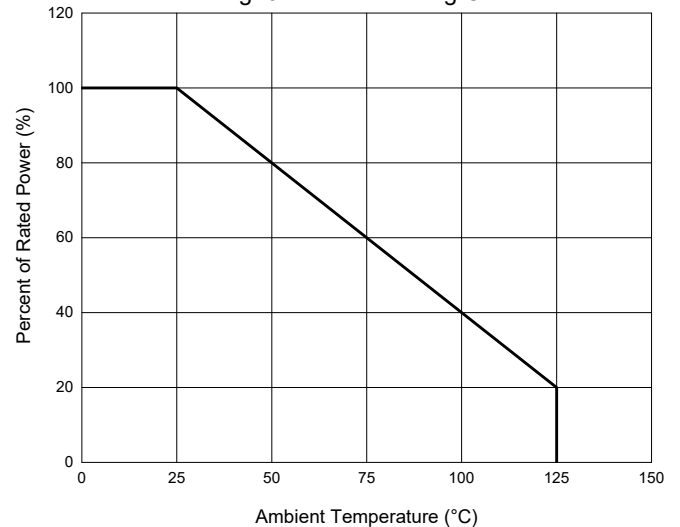


Fig. 6 - Pulse Derating Curve



## Ordering Information

| Device         | Packing                |
|----------------|------------------------|
| Part Number-TP | Tape&Reel: 10Kpcs/Reel |

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