



## SOT-363 Plastic-Encapsulate Diodes

### CESD5V0K5 ESD Protection Diodes

#### DESCRIPTION

The CESD5V0K5 is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space is at a premium.

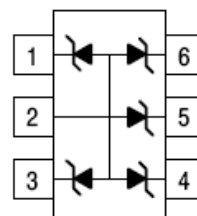
SOT-363



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#### FEATURES

- Low Leakage
- Response Time is Typically < 1 ns
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000-4-2 Level 4 ESD Protection
- These are Pb-Free Devices



PIN 1. CATHODE  
2. ANODE  
3 CATHODE  
4. CATHODE  
5. CATHODE  
6. CATHODE

#### Maximum Ratings @T<sub>A</sub>=25°C

| Parameter                                                          | Symbol                            | Limits       | Unit    |
|--------------------------------------------------------------------|-----------------------------------|--------------|---------|
| IEC61000-4-2(ESD) Air Contact                                      |                                   | ± 15<br>± 15 | KV      |
| ESD voltage Per Human Body Model<br>Per Machine Model              |                                   | 16<br>400    | KV<br>V |
| Peak Power Dissipation @ 8 X 20 ms @T <sub>A</sub> ≤ 25°C (Note 1) | P <sub>pk</sub>                   | 100          | W       |
| Steady State Power -- 1 Diode (Note 2)                             | P <sub>D</sub>                    | 200          | mW      |
| Thermal Resistance Junction-to-Ambient                             | R <sub>ΘJA</sub>                  | 625          | °C/W    |
| Lead Solder Temperature – Maximum (10 Second Duration)             | T <sub>L</sub>                    | 260          | °C      |
| Junction and Storage temperature range                             | T <sub>J</sub> , T <sub>stg</sub> | -55 ~ +150   | °C      |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only.

Functional operation above the Recommended. Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

#### ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted, V<sub>F</sub> = 0.9 V Max. @ I<sub>F</sub> = 10mA for all types)

| Device    | Device Marking | V <sub>RWM</sub> (V) | I <sub>R</sub> (μA)<br>@ V <sub>RWM</sub> | V <sub>BR</sub> (V)<br>@ I <sub>T</sub> |     | I <sub>T</sub> | V <sub>C</sub> (V)<br>@Max<br>I <sub>pp</sub> =1A | V <sub>C</sub> (V)<br>@Max<br>I <sub>pp</sub> =5A | C (pF) |
|-----------|----------------|----------------------|-------------------------------------------|-----------------------------------------|-----|----------------|---------------------------------------------------|---------------------------------------------------|--------|
|           |                | Max                  | Max                                       | Min                                     | Max | mA             | Max                                               | Max                                               | Max    |
| CESD5V0K5 | 22             | 5.0                  | 5                                         | 6.0                                     | 7.2 | 1.0            | 9.5                                               | 12.5                                              | 35     |

1. Non-repetitive current per Figure 1. Derate per Figure 2.

2. Only 1 diode under power. For all 5 diodes under power, P<sub>D</sub> will be 20%. Mounted on FR-4 board with min pad.

## TYPICAL CHARACTERISTICS

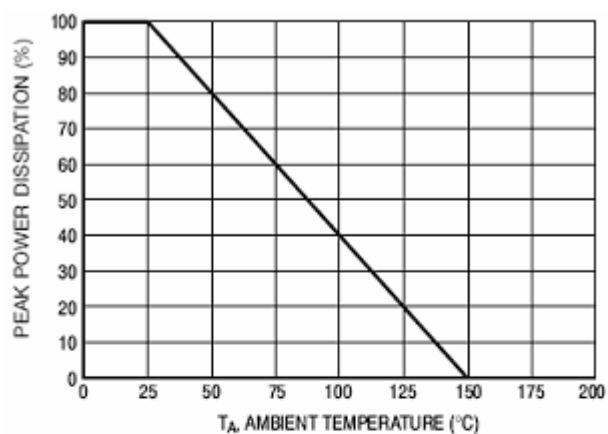


Figure 1. Pulse Derating Curve

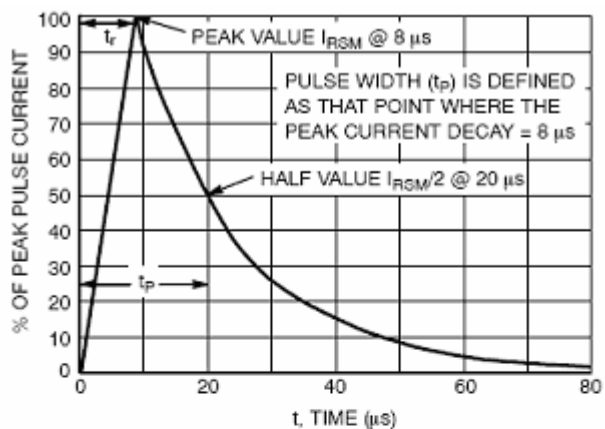


Figure 2. 8 x 20  $\mu\text{s}$  Pulse Waveform

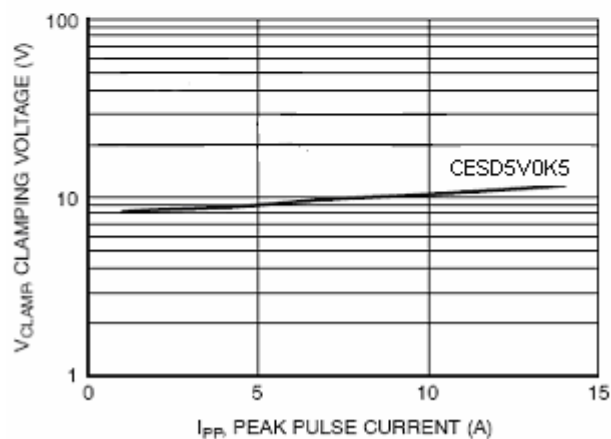


Figure 3. Clamping Voltage vs Peak Pulse Current