

# LC3311CCW thru LC0511CCW

**LOW CAPACITANCE LOW VOLTAGE  
TVS DIODE ARRAY**

## APPLICATIONS

- ◆ Ethernet - 10/100/1000 Base T
- ◆ Cellular Phones
- ◆ I<sup>2</sup>C Bus Protection
- ◆ Parallel & Serial Port Protection
- ◆ Personal Digital Assistant (PDA)
- ◆ Microcontroller Input Protection
- ◆ ISDN S/T Interface
- ◆ WAN/LAN Equipment

## IEC COMPATIBILITY

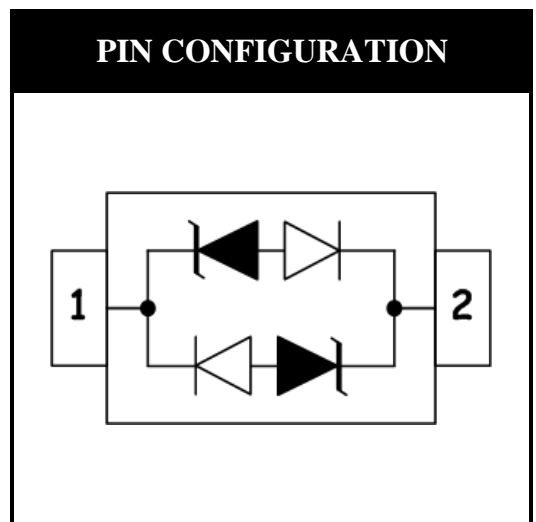
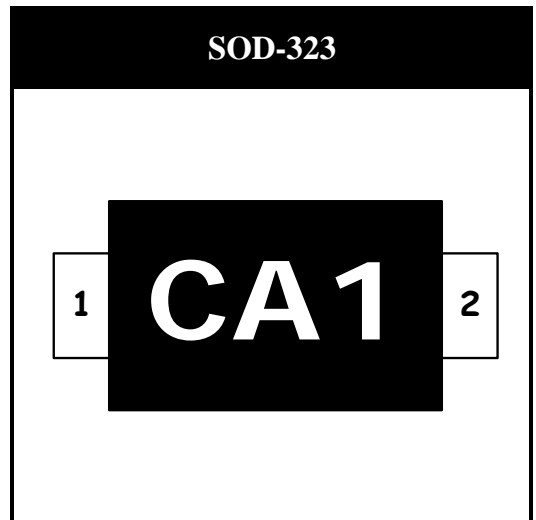
- ◆ IEC61000-4-2 (ESD) ±30kV (Air), ±30kV (Contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-2 (Lighting) 10 ~ 12A (8/20 μs)

## FEATURES

- ◆ 150 ~ 250 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects One Bidirectional I/O line
- ◆ Low clamping voltage
- ◆ Working voltages : 3.3 ~ 5.0V
- ◆ Low leakage current

## MECHANICAL CHARACTERISTICS

- ◆ SOD-323 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Weight 5.0 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free



# LC331CCW thru LC051CCW

## DEVICE CHARACTERISTICS

### MAXIMUM RATINGS (@ 25°C Unless Otherwise Specified)

| PARAMETER                             | SYMBOL           | VALUE         | UNITS |
|---------------------------------------|------------------|---------------|-------|
| Peak Pulse Power (tp=8/20μs waveform) | P <sub>PP</sub>  | 150           | Watts |
| Peak Pulse Power (tp=8/20μs waveform) | P <sub>PP</sub>  | 250           | Watts |
| Lead Soldering Temperature            | T <sub>L</sub>   | 260 (10 sec.) | °C    |
| Operating Temperature Range           | T <sub>J</sub>   | -55 ~ 150     | °C    |
| Storage Temperature Range             | T <sub>STG</sub> | -55 ~ 150     | °C    |

### ELECTRICAL CHARACTERISTICS PER LINE (@ 25°C Unless Otherwise Specified)

| PART NUMBER | DEVICE MARKING | V <sub>RWM</sub> | V <sub>B</sub> | I <sub>T</sub> | V <sub>C</sub> | V <sub>C</sub> |      | I <sub>R</sub> | C <sub>T</sub> |
|-------------|----------------|------------------|----------------|----------------|----------------|----------------|------|----------------|----------------|
|             |                | (V)<br>(max.)    | (V)<br>(min.)  | (mA)           | @1A<br>(max.)  | (max.)         | (@A) | (μA)<br>(max.) | (pF)<br>(typ.) |
| LC331CCW    | CA1            | 3.3              | 3.5            | 1              | 6              | 15             | 10   | 0.05           | 1              |
| LC051CCW    | CA5            | 5.0              | 6.0            | 1              | 9.8            | 21             | 12   | 0.05           | 1              |

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## TYPIC CHARACTERISTICS

Figure 1. 8 x 20  $\mu$ s Waveform

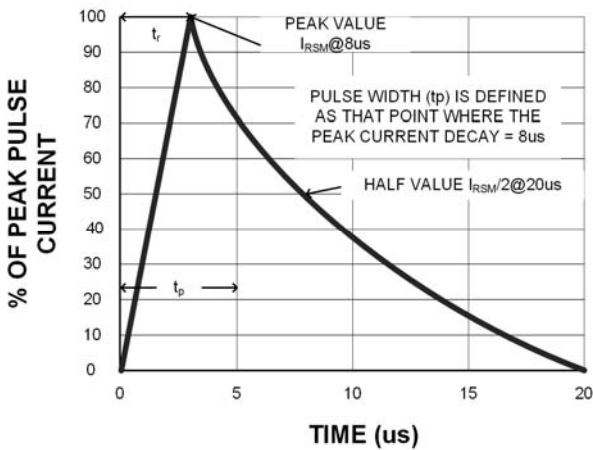


Figure 2. Power Derating Curve

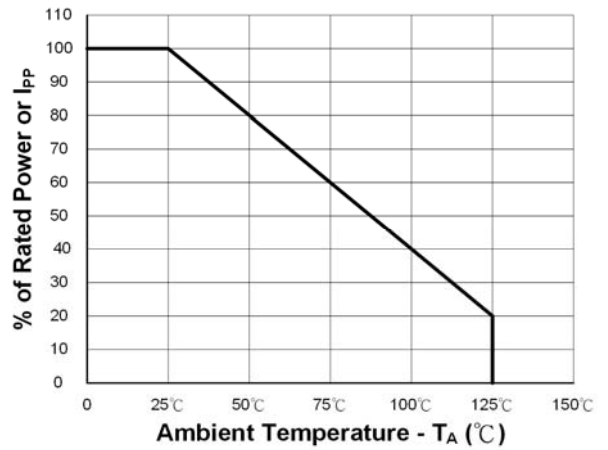
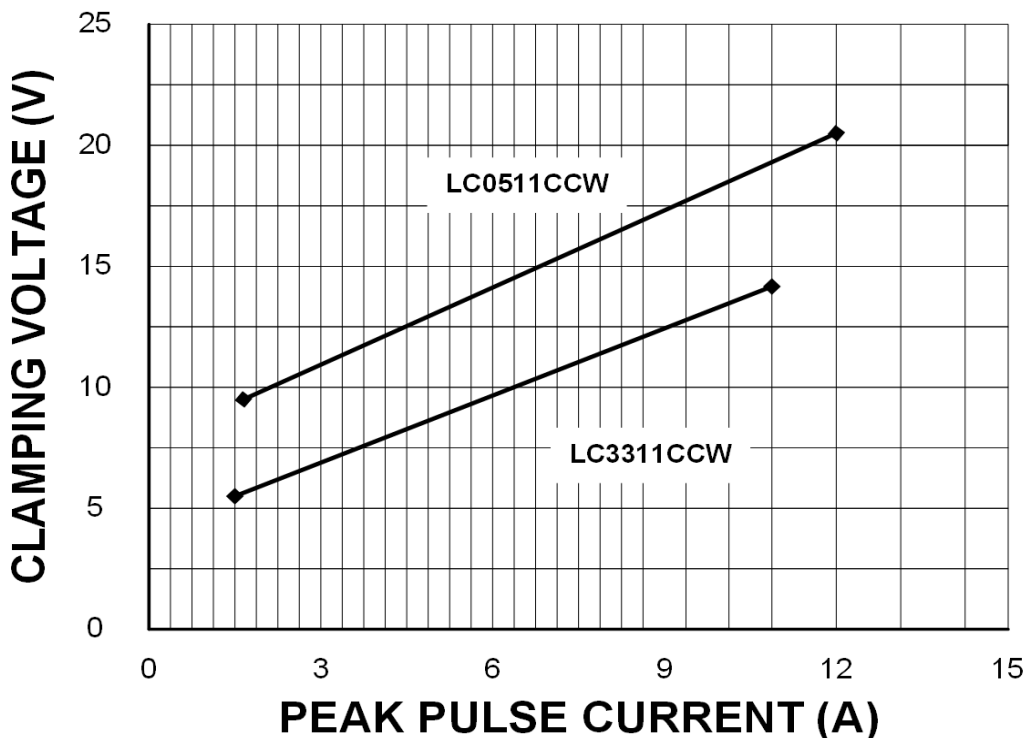


Figure 3. Clamping Voltage vs. Peak Pulse Current ( $t_p=8/20\mu s$ )



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## TYPIC CHARACTERISTICS

Figure 4. Typical Capacitance vs. Reverse Voltage

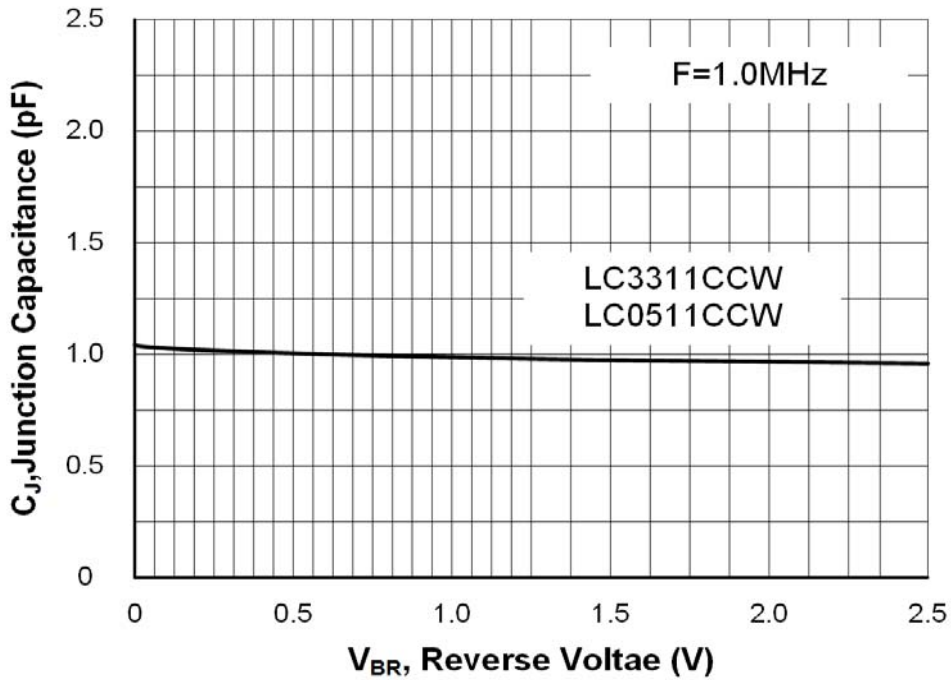
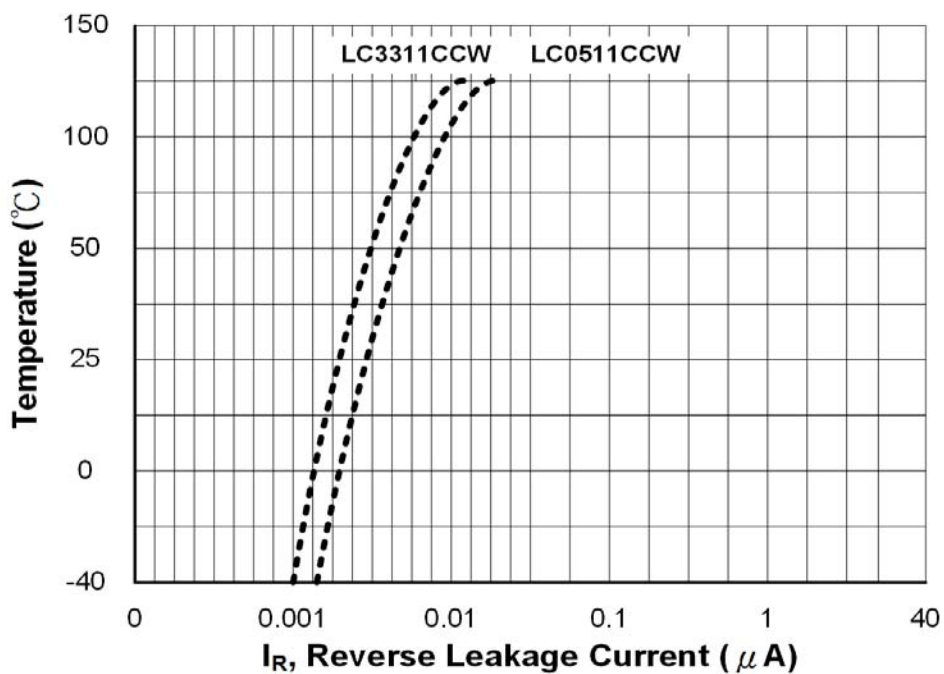
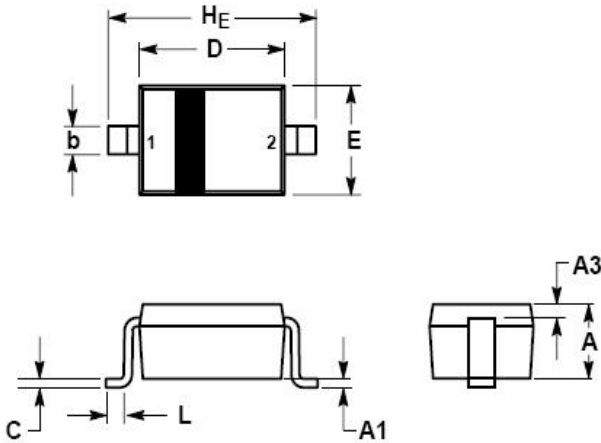


Figure 5. Typical Reverse Leakage vs. Temperature



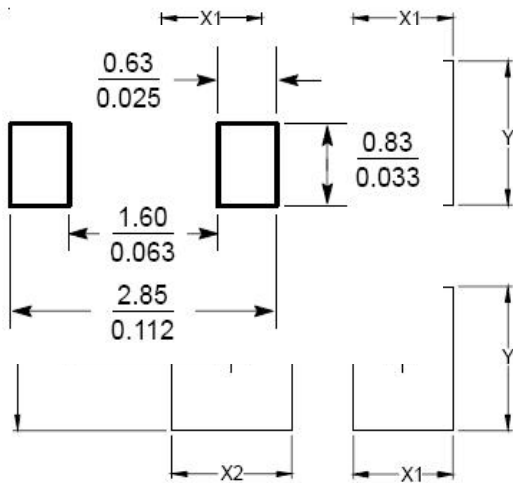
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## SOD-323 PACKAGE OUTLINE & DIMENSIONS



| DIM | MILLIMETERS |      |       | INCHES    |       |       |
|-----|-------------|------|-------|-----------|-------|-------|
|     | MIN         | NOM  | MAX   | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00  | 0.031     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10  | 0.000     | 0.002 | 0.004 |
| A3  | 0.15 REF    |      |       | 0.006 REF |       |       |
| b   | 0.25        | 0.32 | 0.4   | 0.010     | 0.012 | 0.016 |
| C   | 0.089       | 0.12 | 0.177 | 0.003     | 0.005 | 0.007 |
| D   | 1.60        | 1.70 | 1.80  | 0.062     | 0.066 | 0.070 |
| E   | 1.15        | 1.25 | 1.35  | 0.045     | 0.049 | 0.053 |
| L   | 0.08        |      |       | 0.003     |       |       |
| HE  | 2.30        | 2.50 | 2.70  | 0.090     | 0.098 | 0.105 |

### \* SOLDERING FOOTPRINT



| DIMENSIONS |        |             |
|------------|--------|-------------|
| DIM        | INCHES | MILLIMETERS |
| C          | (.087) | (2.20)      |
| E1         | .076   | 1.92        |
| E2         | .068   | 1.72        |
| G          | .031   | 0.80        |
| X1         | .039   | 1.00        |
| X2         | .047   | 1.20        |
| Y          | .055   | 1.40        |
| Z          | .141   | 3.60        |