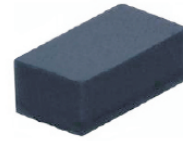


# SMD ESD Protection Diode



SMD Diodes Specialist

## CPDQR5V0 (RoHS Device)

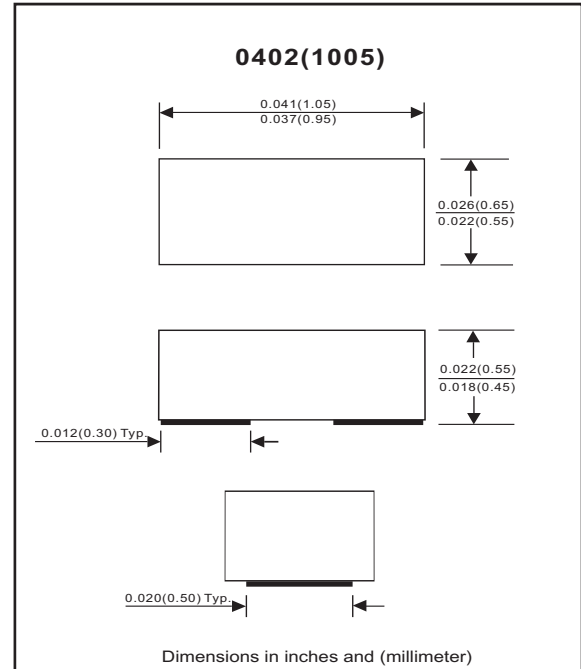


### Features

Bi-directional ESD protection.  
(16kV) IEC 61000-4-2 rating.  
Surface mount package.  
Ultra small SMD package:0402.  
High component density.

### Mechanical data

Case: 0402(1005) standard package,  
molded plastic.  
Terminals: Gold plated, solderable per  
MIL-STD-750,method 2026.  
Marking Code:  
CPDQR5V0: E5  
Mounting position: Any.  
Weight: 0.001 gram(approx.).



### Electrical Characteristics (at TA=25°C unless otherwise noted)

| Parameter               | Conditions                                    | Symbol           | Min | Typ | Max     | Unit |
|-------------------------|-----------------------------------------------|------------------|-----|-----|---------|------|
| Diode breakdown voltage | I <sub>R</sub> = 1mA                          | V <sub>BD</sub>  | 5.1 | 7.0 |         | V    |
| Leakage current         | V <sub>R</sub> = 5V                           | I <sub>L</sub>   |     | 0.1 | 2.0     | uA   |
| Junction capacitance    | V <sub>R</sub> = 0V, f = 1MHz                 | C <sub>T</sub>   |     | 15  | 20      | pF   |
| ESD capability          | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact)  | ESD              |     |     | 16<br>8 | kV   |
| Clamping voltage        | I <sub>PP</sub> = 5A, T <sub>P</sub> = 8/20us | V <sub>C</sub>   |     |     | 15      | V    |
| Peak pulse power        | T <sub>P</sub> = 8/20us                       | P <sub>PP</sub>  |     |     | 75      | W    |
| Operation temperature   |                                               | T <sub>J</sub>   |     |     | 125     | °C   |
| Storage temperature     |                                               | T <sub>STG</sub> | -55 |     | 150     | °C   |

RATING AND CHARACTERISTIC CURVES (CPDQR5V0)

Fig. 1 - 8/20us Peak pulse current wave form acc. IEC 61000-4-5

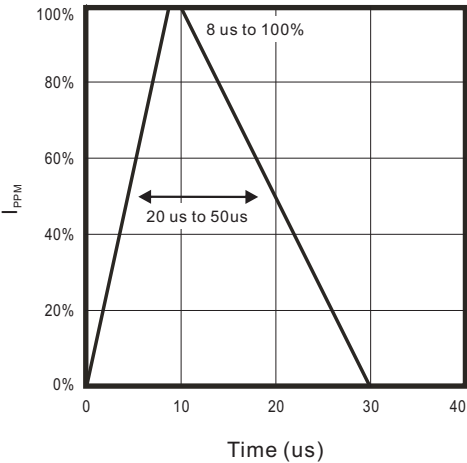


Fig. 2 - Reverse characteristics

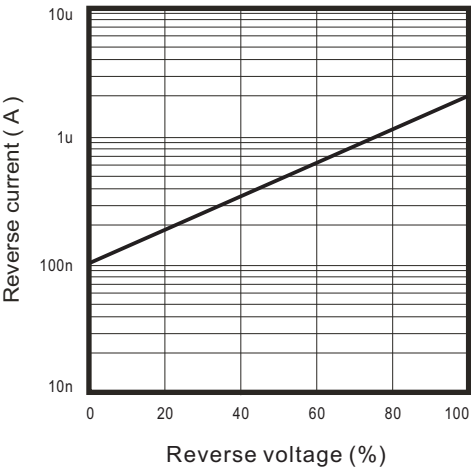


Fig. 3 - Capacitance between terminals characteristics

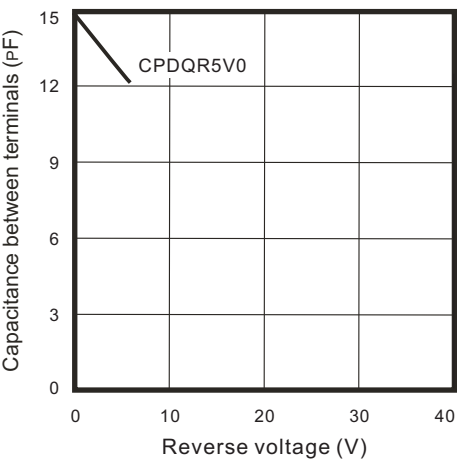
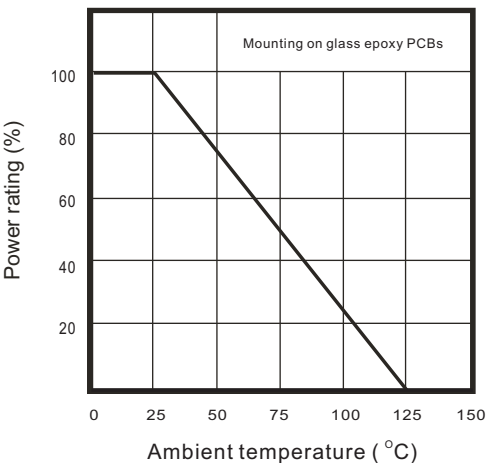
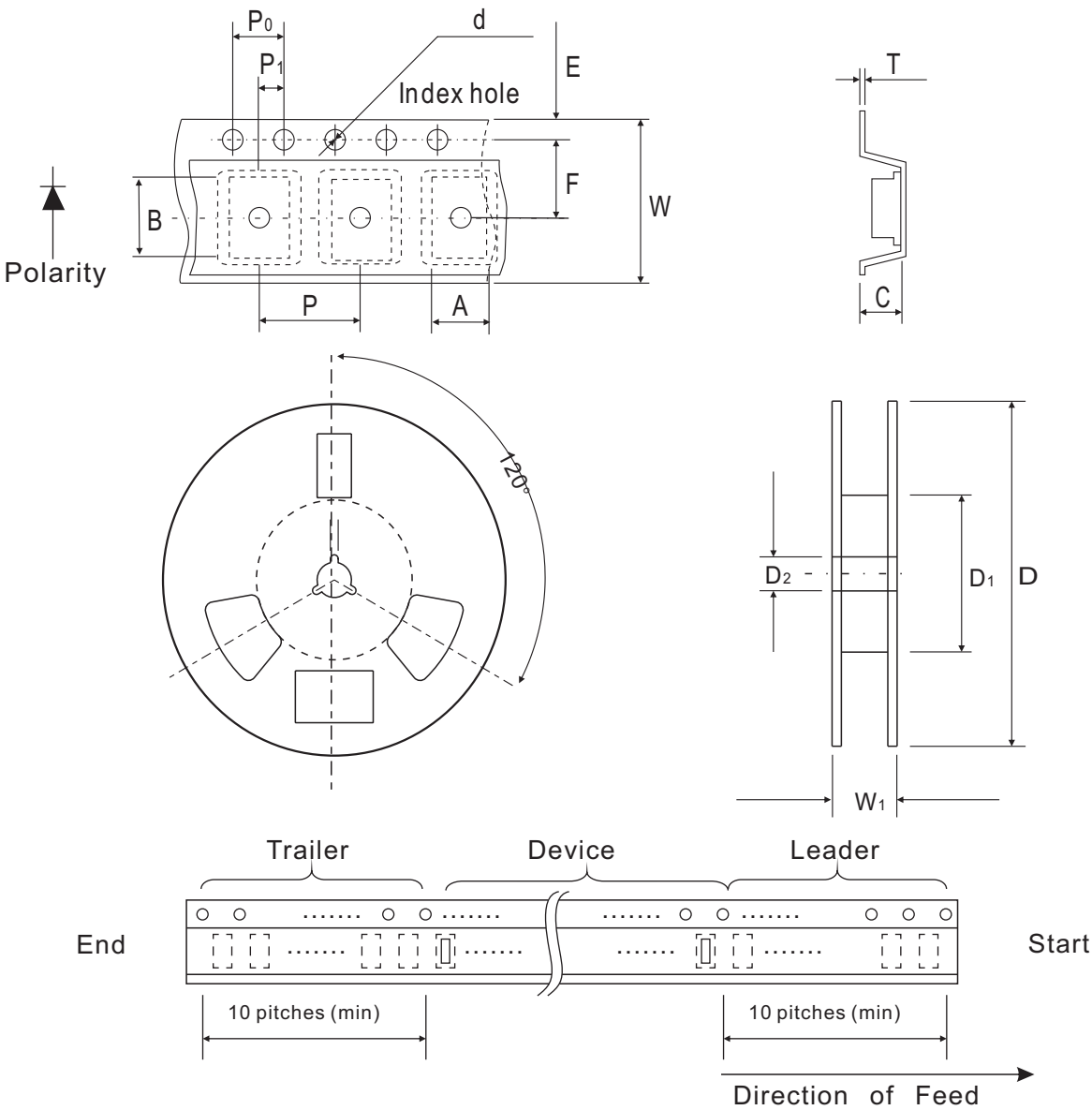


Fig. 4 - Power rating derating curve



Reel Taping Specification



| QR/0402 | SYMBOL | A             | B             | C             | d             | D            | D <sub>1</sub> | D <sub>2</sub> |
|---------|--------|---------------|---------------|---------------|---------------|--------------|----------------|----------------|
|         | (mm)   | 0.80 ± 0.10   | 1.30 ± 0.10   | 0.55 ± 0.10   | 1.55 ± 0.10   | 178 ± 1      | 60.0 MIN.      | 13.0 ± 0.20    |
|         | (inch) | 0.031 ± 0.004 | 0.051 ± 0.004 | 0.022 ± 0.004 | 0.061 ± 0.004 | 7.008 ± 0.04 | 2.362 MIN.     | 0.512 ± 0.008  |

| QR/0402 | SYMBOL | E             | F             | P             | P <sub>0</sub> | P <sub>1</sub> | T             | W             | W <sub>1</sub> |
|---------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
|         | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10    | 2.00 ± 0.10    | 0.22 ± 0.05   | 8.00 ± 0.20   | 13.5 MAX.      |
|         | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.004  | 0.009 ± 0.002 | 0.315 ± 0.008 | 0.531 MAX.     |

Marking Code

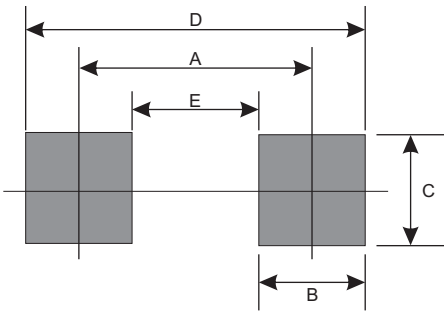
| Part Number | Marking Code |
|-------------|--------------|
| CPDQR5V0    | E5           |



xx = Product type marking code

Suggested PAD Layout

| SIZE | QR/0402 |        |
|------|---------|--------|
|      | (mm)    | (inch) |
| A    | 0.750   | 0.030  |
| B    | 0.500   | 0.020  |
| C    | 0.700   | 0.028  |
| D    | 1.250   | 0.049  |
| E    | 0.250   | 0.010  |



Standard Package

| Case Type | Qty per Reel | Reel Size |
|-----------|--------------|-----------|
|           | (Pcs)        | (inch)    |
| QR/0402   | 5000         | 7         |