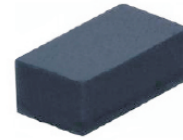


## CPDQR12V-HF

RoHS Device  
Halogen Free

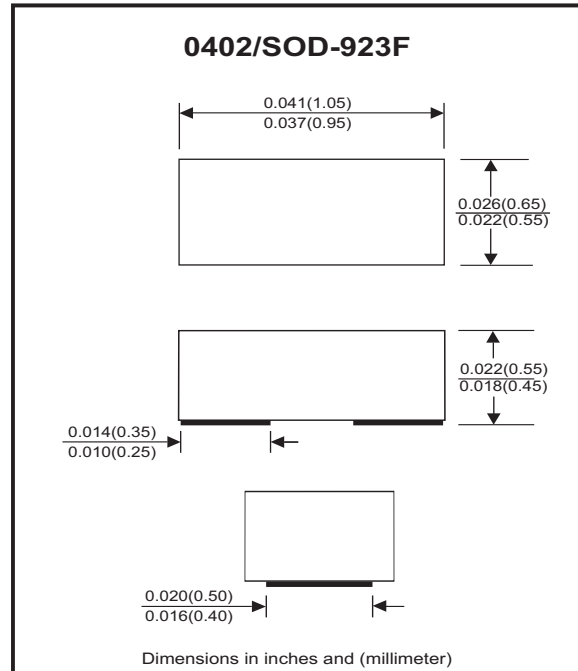


### Features

- Bi-directional ESD protection.
- Surface mount package.
- Ultra small SMD package:0402.
- High component density.

### Mechanical data

- Case: 0402/SOD-923F standard package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750,method 2026.
- Marking Code:  
CPDQR12V-HF: E2
- Mounting position: Any.
- Weight: 0.001 grams(approx.).



### Circuit Diagram



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

| Parameter                   | Conditions                                    | Symbol           | Min | Typ | Max     | Unit |
|-----------------------------|---|------------------|-----|-----|---------|------|
| Diode breakdown voltage     | IR = 1mA                                      | V <sub>BD</sub>  | 13  | 17  |         | V    |
| Leakage current             | VR = 12V                                      | I <sub>L</sub>   |     | 0.1 | 2.0     | uA   |
| Junction capacitance        | VR = 0V, f = 1MHz                             | C <sub>T</sub>   |     | 12  |         | 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> = 1A, T <sub>P</sub> = 8/20us | V <sub>C</sub>   |     |     | 25      | V    |
| Peak pulse power            | T <sub>P</sub> = 8/20us                       | P <sub>PP</sub>  |     |     | 25      | W    |
| Operation temperature range |   | T <sub>J</sub>   | -40 |     | 125     | °C   |
| Storage temperature range   |   | T <sub>STG</sub> | -55 |     | 150     | °C   |

## RATING AND CHARACTERISTIC CURVES (CPDQR12V-HF)

Fig.1 - 8/20us Peak Pulse Current  
Wave Form Acc. IEC 61000-4-5

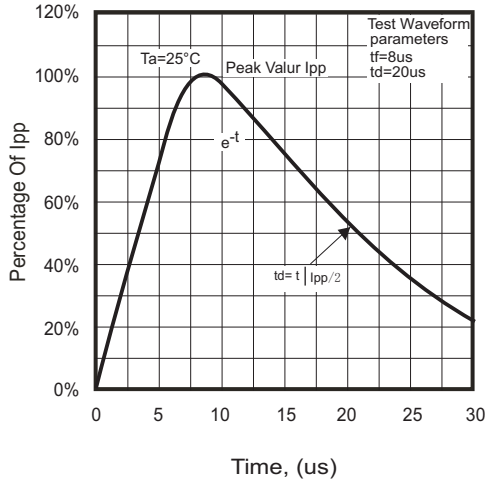


Fig.2 - Reverse Characteristics

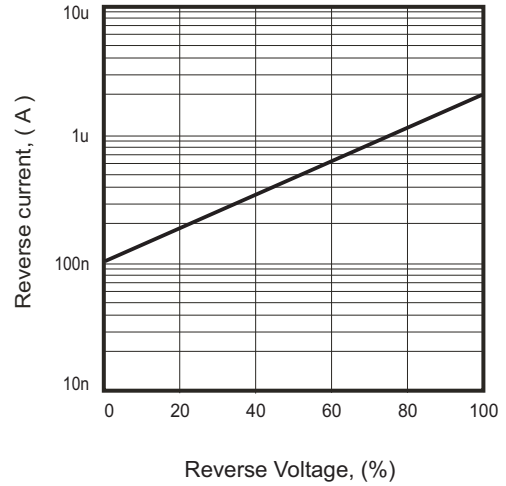


Fig.3 - Capacitance Between  
Terminals Characteristics

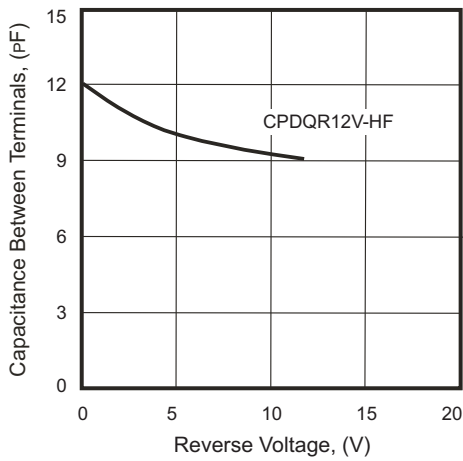
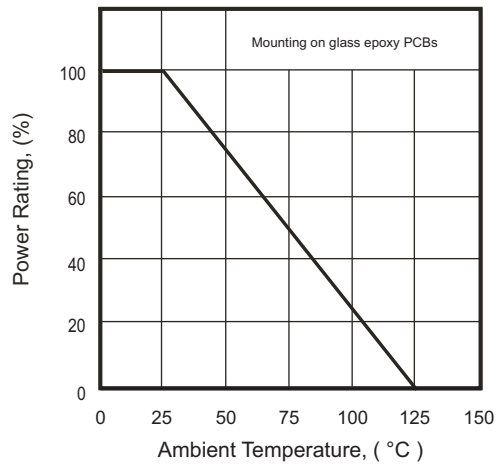
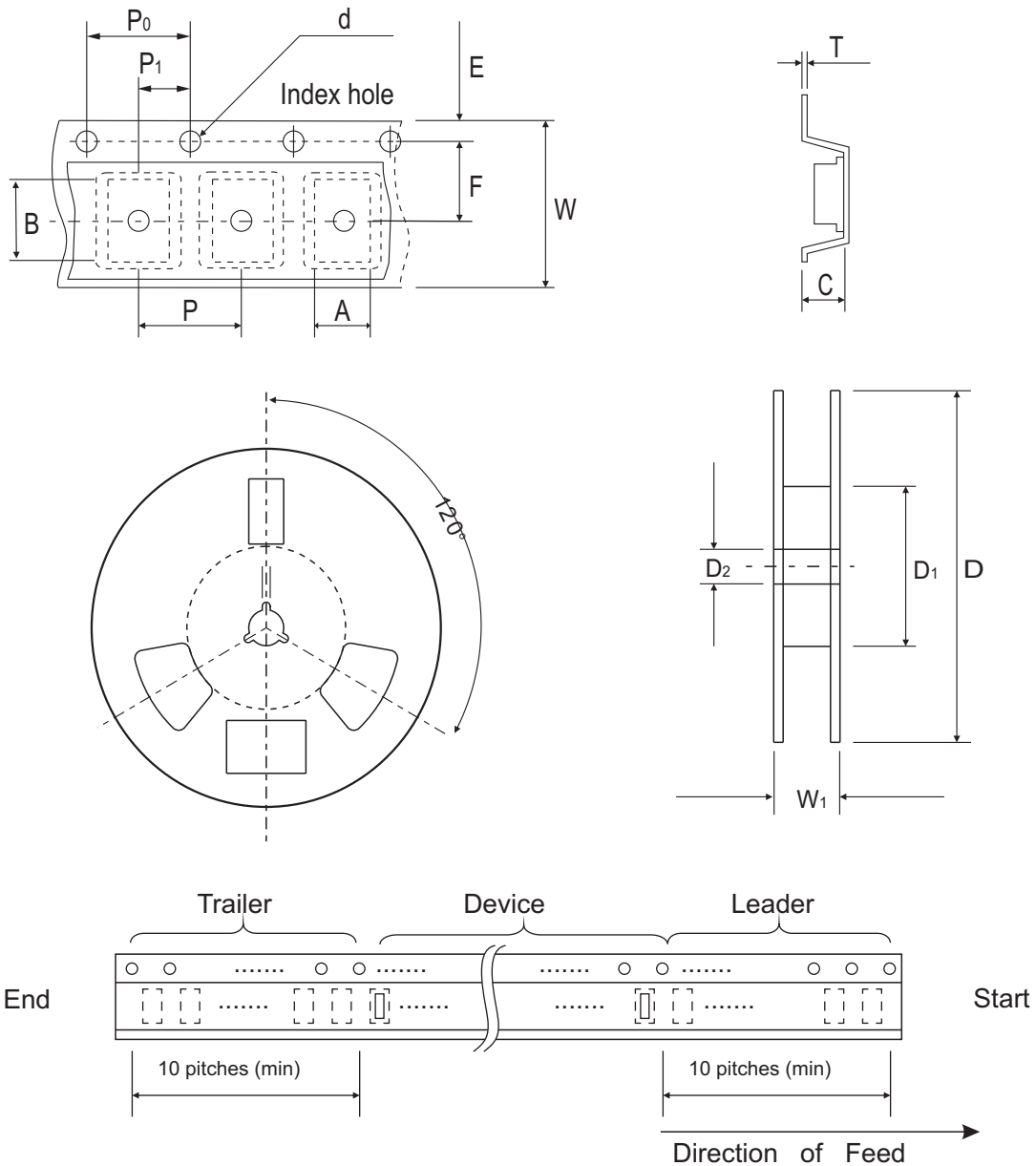


Fig.4 - Power Rating Derating Curve



## Reel Taping Specification



| 0402<br>(SOD-923F) | SYMBOL | A             | B             | C             | d             | D             | D <sub>1</sub> | D <sub>2</sub> |
|--------------------|--------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|
|                    | (mm)   | 0.75 ± 0.10   | 1.15 ± 0.10   | 0.60 ± 0.10   | 1.55 ± 0.10   | 178 ± 1       | 60.0 MIN.      | 13.0 ± 0.20    |
|                    | (inch) | 0.030 ± 0.004 | 0.045 ± 0.004 | 0.024 ± 0.004 | 0.061 ± 0.004 | 7.008 ± 0.040 | 2.362 MIN.     | 0.512 ± 0.008  |

| 0402<br>(SOD-923F) | 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

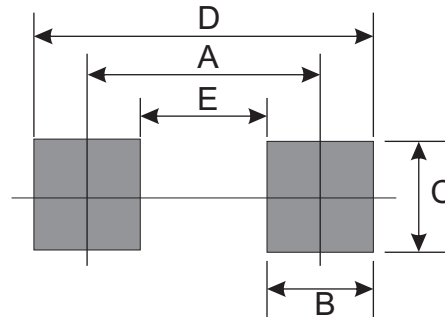
| Part Number | Marking Code |
|-------------|--------------|
| CPDQR12V-HF | E2           |



xx = Product type marking code

## Suggested PAD Layout

| SIZE | 0402/SOD-923F |        |
|------|---------------|--------|
|      | (mm)          | (inch) |
| A    | 0.75          | 0.030  |
| B    | 0.50          | 0.020  |
| C    | 0.70          | 0.028  |
| D    | 1.25          | 0.049  |
| E    | 0.25          | 0.010  |



## Standard Packaging

| Case Type     | Qty Per Reel | Reel Size |
|---------------|--------------|-----------|
|               | (Pcs)        | (inch)    |
| 0402/SOD-923F | 5,000        | 7         |

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