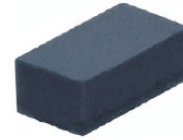


## CPDQR3V3R-HF

**RoHS Device**  
**Halogen Free**

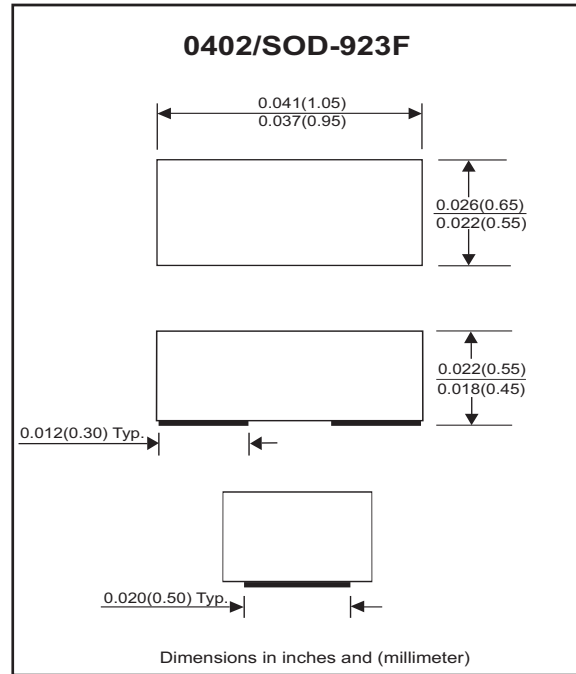


### Features

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

### Mechanical data

- Case: 0402/SOD-923 standard package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750,method 2026.
- Marking Code: E3
- Mounting position: Any.
- Weight: 0.001 gram(approx.).



### Circuit Diagram



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

| Parameter                 | Conditions                                    | Symbol           | Min | Typ | Max  | Unit |
|---------------------------|---|------------------|-----|-----|------|------|
| Reverse stand-off voltage |   | V <sub>RWM</sub> |     |     | 3.3  | V    |
| Diode breakdown voltage   | I <sub>R</sub> = 1mA                          | V <sub>BD</sub>  | 5.0 |     |      | V    |
| Leakage current           | V <sub>R</sub> = 3.3V                         | I <sub>R</sub>   |     |     | 100  | nA   |
| Junction capacitance      | V <sub>R</sub> = 0V, f = 1MHz                 | C <sub>T</sub>   |     | 18  |      | pF   |
| Clamping voltage          | I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20us | V <sub>C</sub>   |     |     | 15.5 |      |
|                           | I <sub>PP</sub> = 2A, t <sub>p</sub> = 8/20us | V <sub>C</sub>   |     |     | 18   | V    |
| Peak pulse power          | t <sub>p</sub> = 8/20                         | P <sub>PK</sub>  |     |     | 36   | W    |
| ESD capability            | IEC 61000-4-2(air)                            | ESD              |     |     | 15   | kV   |
|                           | IEC 61000-4-2(contact)                        | ESD              |     |     | 8    | kV   |
| Operation temperature     |   | T <sub>j</sub>   |     |     | 150  | °C   |
| Storage temperature       |   | T <sub>STG</sub> | -55 |     | 150  | °C   |

## RATING AND CHARACTERISTIC CURVES (CPDQR3V3R-HF)

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

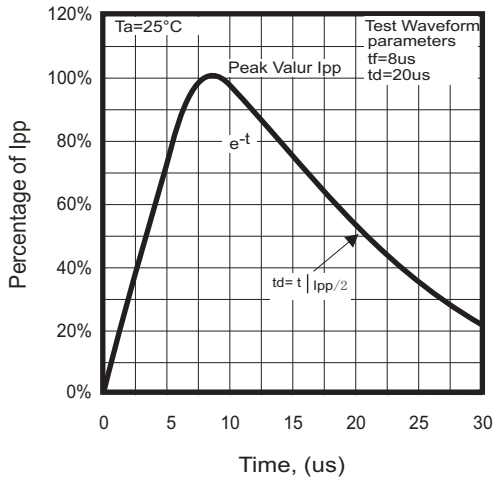


Fig. 2 - Capacitance between terminals characteristics

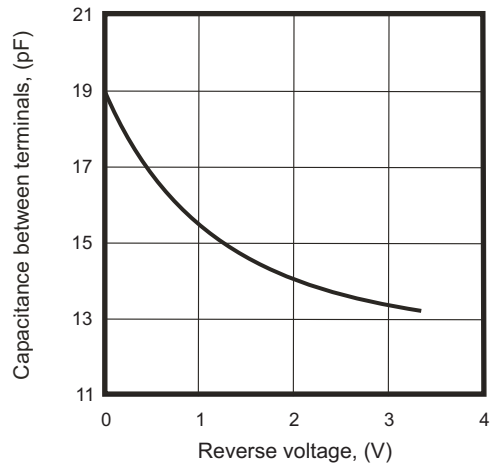


Fig.3 - Clamping voltage vs. peak pulse current

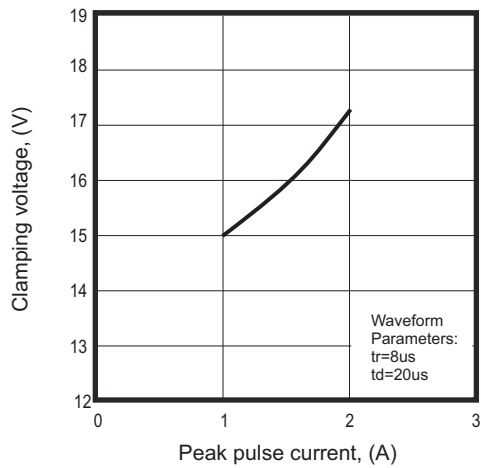
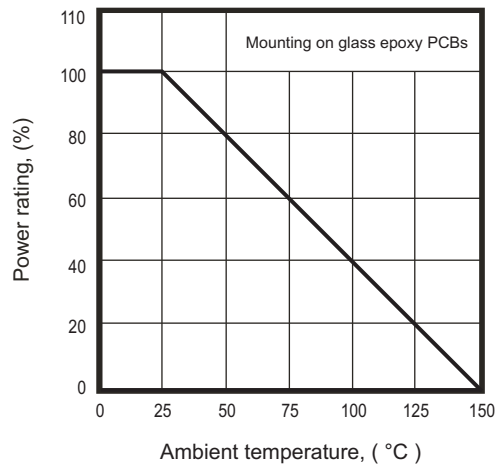
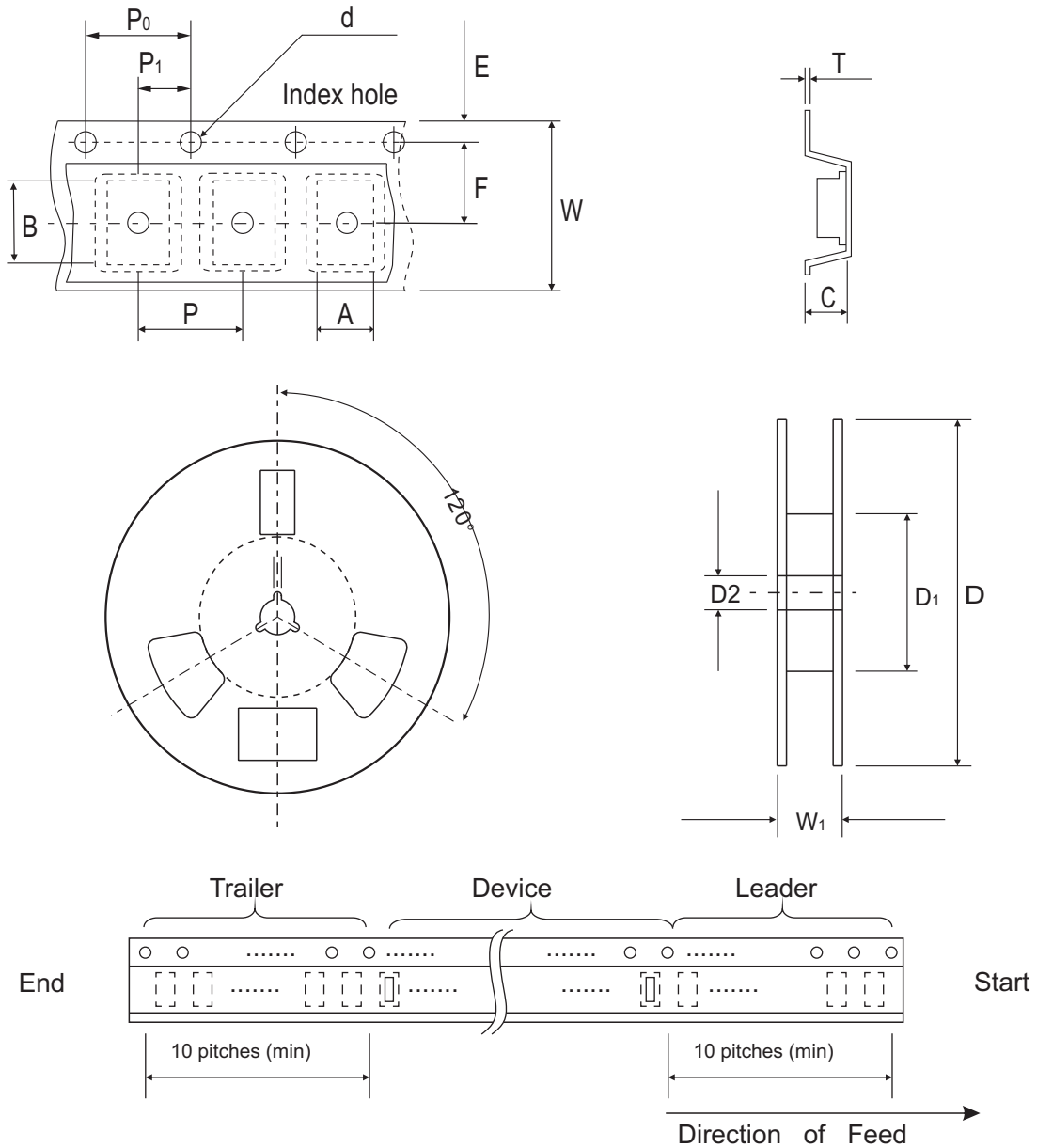


Fig. 4 - Power rating derating curve



## 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 ± 0.04 | 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    | 0.23 ± 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

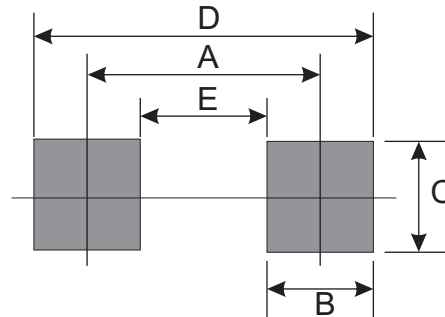
| Part Number  | Marking Code |
|--------------|--------------|
| CPDQR3V3R-HF | E3           |



Product type marking code

## Suggested PAD Layout

| SIZE | 0402/SOD-923F |        |
|------|---------------|--------|
|      | (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 Packaging

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