

# CPDQC3V3T-HF

RoHS Device  
Halogen Free

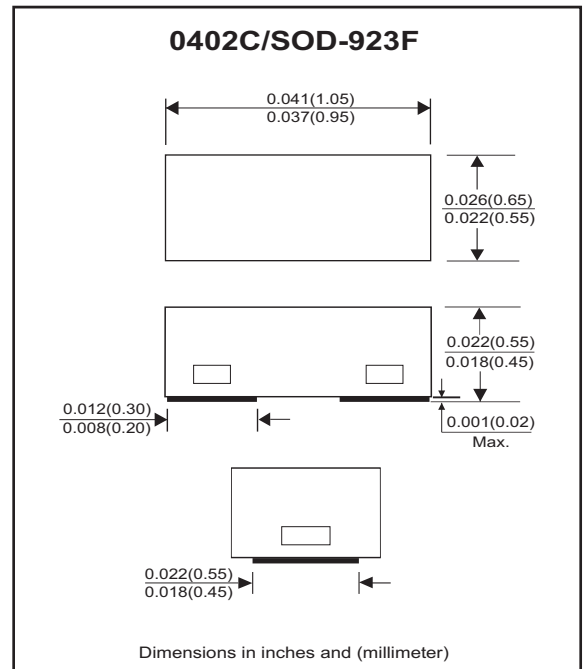


## Features

- Bi-directional ESD protection.
- IEC 61000-4-2  $\pm 30\text{kV}$ (Contact).
- ESD Rating of Class 3 per Human Body Model.
- ESD Rating of Class 4 per Machine Model.
- Surface mount package.
- Ultra small SMD package:0402
- High component density.

## Mechanical data

- Case: 0402C/SOD-923F Standard package, molded plastic.
- Terminals: Matte tin plated, solderable per MIL-STD-750,method 2026.
- Mounting position: Any.
- Weight: 0.001 grams(approx.).



## Circuit diagram



## Maximum Rating (at $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter                   | Conditions              | Symbol    | Value           | Unit             |
|-----------------------------|-------------------------|-----------|-----------------|------------------|
| Peak pulse power            | $T_P = 8/20\mu\text{s}$ | $P_{PP}$  | 170             | W                |
| Peak pulse current          | $T_P = 8/20\mu\text{s}$ | $I_{PP}$  | 16              | A                |
| ESD capability              | IEC 61000-4-2(air)      | ESD       | $\pm 30$        | kV               |
|                             | IEC 61000-4-2(contact)  | ESD       | $\pm 30$        |                  |
| Operation temperature range |                         | $T_J$     | $-40 \sim +125$ | $^\circ\text{C}$ |
| Storage temperature range   |                         | $T_{STG}$ | $-55 \sim +150$ | $^\circ\text{C}$ |

## Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter                    | Conditions                                   | Symbol    | Min | Typ     | Max | Unit          |
|------------------------------|----------------------------------------------|-----------|-----|---------|-----|---------------|
| Working peak reverse voltage |                                              | $V_{RWM}$ |     |         | 3.3 | V             |
| Breakdown voltage            | $I_T = 1\text{mA}$                           | $V_{BR}$  | 3.6 | 4.2     | 4.6 | V             |
| Reverse leakage current      | $V_{RWM} = 3.3\text{V}$                      | $I_R$     |     | $<0.02$ | 0.5 | $\mu\text{A}$ |
| Clamping voltage             | $I_{PP} = 1\text{A}, T_P = 8/20\mu\text{s}$  | $V_C$     |     | 4.65    |     | V             |
|                              | $I_{PP} = 16\text{A}, T_P = 8/20\mu\text{s}$ |           |     | 9.8     |     |               |
| Clamping voltage             | $I_{PP} = 5\text{A}, T_P = 100\text{ns}$     | $V_{CL}$  |     | 6       |     | V             |
|                              | $I_{PP} = 18\text{A}, T_P = 100\text{ns}$    |           |     | 8.75    |     |               |
| Dynamic resistance           |                                              | $R_{DYN}$ |     | 0.18    |     | $\Omega$      |
| Junction capacitance         | $V_R = 0\text{V}, f = 1\text{MHz}$           | $C_J$     |     | 20      | 25  | pF            |

## RATING AND CHARACTERISTIC CURVES (CPDQC3V3T-HF)

Fig.1 - 8/20us Peak Pulse Current  
Waveform ACC. IEC 61000-4-5

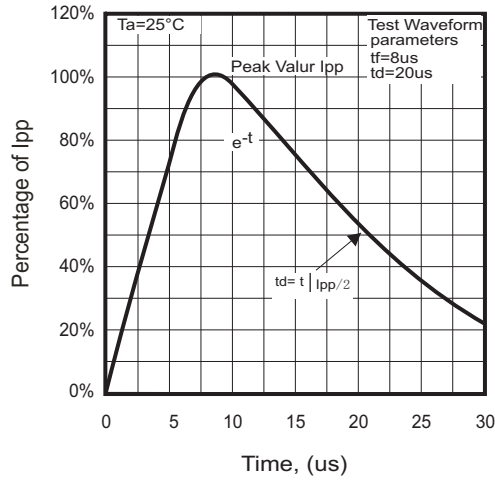


Fig.2 - Typical Capacitance Between  
Terminals Characteristics

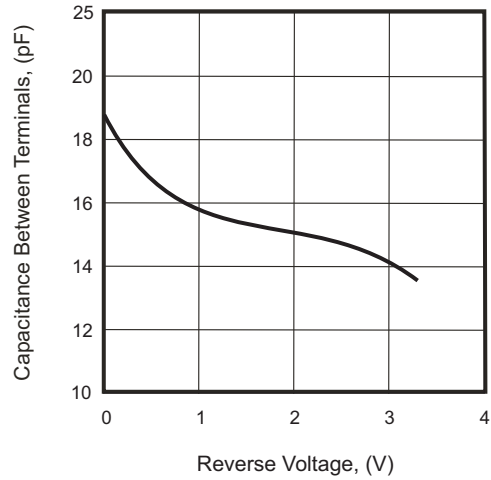


Fig.3 - Clamping Voltage Vs.  
Peak Pulse Current

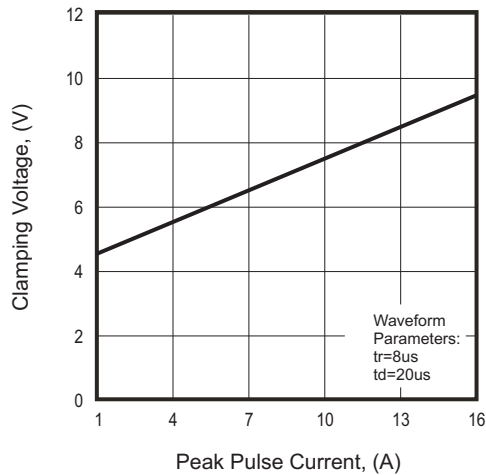


Fig.4 - Power Rating Derating Curve

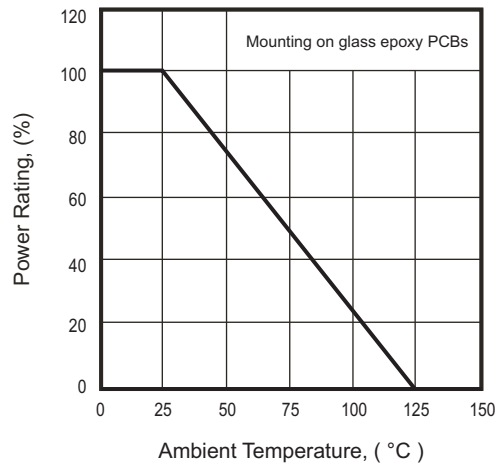


Fig. 5 - Pin1 To Pin2

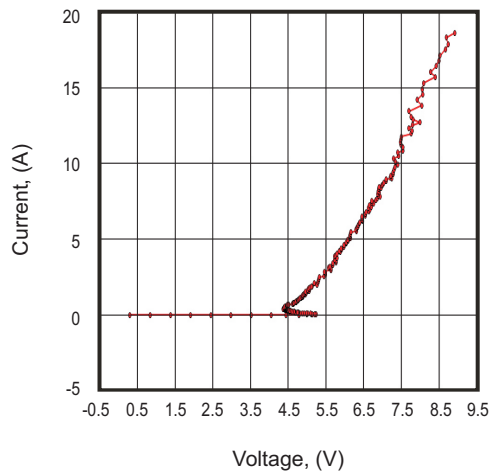
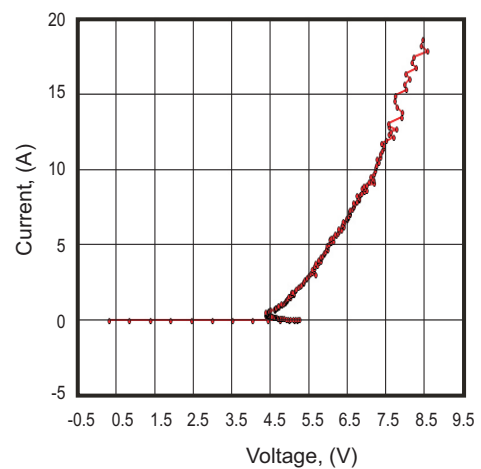
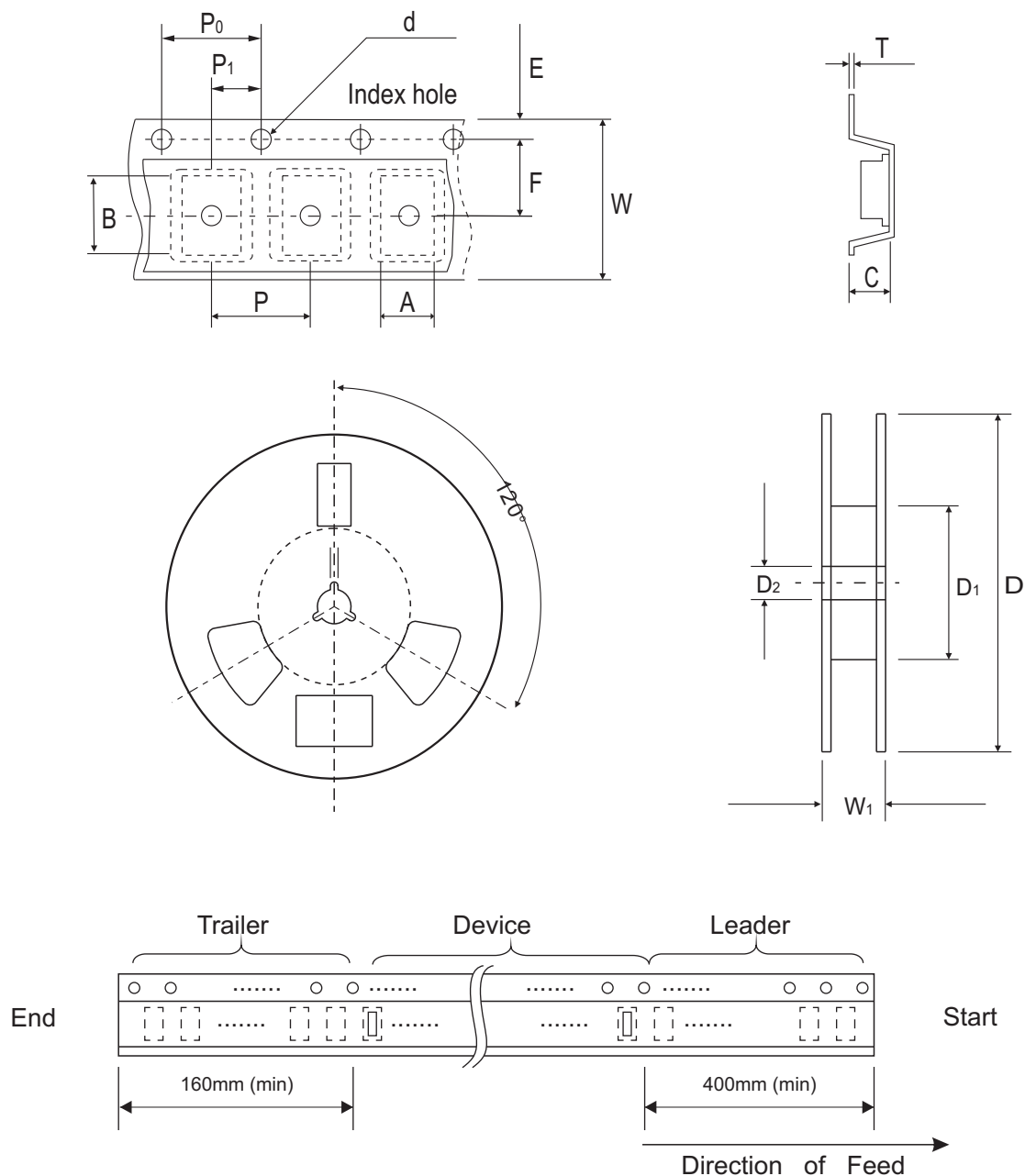


Fig.6 - Pin2 To Pin1



## Reel Taping Specification



|                     | SYMBOL | A                 | B                 | C                 | d                   | D                 | D <sub>1</sub>    | D <sub>2</sub>    |
|---------------------|--------|-------------------|-------------------|-------------------|---------------------|-------------------|-------------------|-------------------|
| 0402C<br>(SOD-923F) |        |                   |                   |                   |                     |                   |                   |                   |
|                     | (mm)   | $0.75 \pm 0.05$   | $1.17 \pm 0.05$   | $0.65 \pm 0.05$   | $1.50 + 0.10 - 0$   | $178.00 \pm 1.00$ | $60.00 \pm 0.50$  | $13.50 \pm 0.20$  |
|                     | (inch) | $0.030 \pm 0.002$ | $0.046 \pm 0.002$ | $0.026 \pm 0.002$ | $0.059 + 0.004 - 0$ | $7.008 \pm 0.039$ | $2.362 \pm 0.020$ | $0.531 \pm 0.008$ |

|                     | SYMBOL | E                 | F                 | P                 | P <sub>0</sub>    | P <sub>1</sub>    | T                       | W                 | W <sub>1</sub>      |
|---------------------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|-------------------|---------------------|
| 0402C<br>(SOD-923F) |        |                   |                   |                   |                   |                   |                         |                   |                     |
|                     | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.10$   | $4.00 \pm 0.10$   | $4.00 \pm 0.10$   | $2.00 \pm 0.10$   | $0.20 + 0.02 - 0.05$    | $8.00 \pm 0.20$   | $12.00 + 0.50 - 0$  |
|                     | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.004$ | $0.157 \pm 0.004$ | $0.157 \pm 0.004$ | $0.079 \pm 0.004$ | $0.008 + 0.001 - 0.002$ | $0.315 \pm 0.008$ | $0.472 + 0.020 - 0$ |

## Marking Code

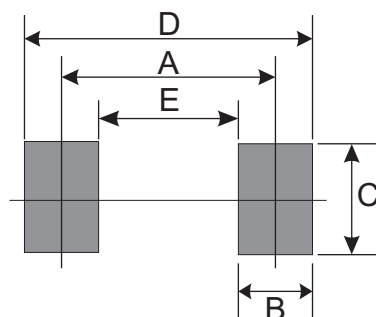
| Part Number  | Marking Code |
|--------------|--------------|
| CPDQC3V3T-HF | E3           |



xx = Product type marking code

## Suggested PAD Layout

| SIZE | 0402C/SOD-923F |        |
|------|----------------|--------|
|      | (mm)           | (inch) |
| A    | 0.70           | 0.028  |
| B    | 0.40           | 0.016  |
| C    | 0.70           | 0.028  |
| D    | 1.10           | 0.043  |
| E    | 0.30           | 0.012  |



## Standard Packaging

| Case Type      | REEL PACK       |                     |
|----------------|-----------------|---------------------|
|                | REEL<br>( pcs ) | Reel Size<br>(inch) |
| 0402C/SOD-923F | 5,000           | 7                   |