

# CPDQC3V3C-HF

RoHS Device  
Halogen Free



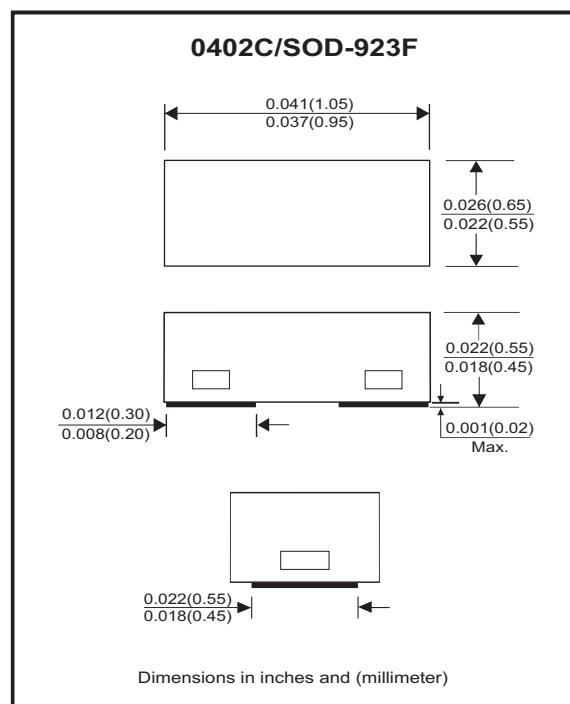
## Features

- Bi-directional ESD protection.
- IEC61000-4-2 Level 4 ESD protection.
- ESD Rating of Class 3 per Human Body Mode.
- Surface mount package.
- Ultra small SMD package:0402.
- High component density.

## Mechanical data

- Case: 0402C/SOD-923F standard package, molded plastic.
- Terminals: Gold plated, Solderable per MIL-STD-750,method 2026.
- Marking Code: E3
- 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            | $T_P = 8/20\mu\text{s}$                      | $P_{PP}$  | 65              | W                  |
| Peak pulse current          | $T_P = 8/20\mu\text{s}$                      | $I_{PP}$  | 5               | A                  |
| ESD capability              | IEC 61000-4-2(Air)<br>IEC 61000-4-2(Contact) | $V_{ESD}$ | $\pm 25$        | kV                 |
| Operating temperature range |                                              | $T_J$     | $-55$ to $+125$ | $^{\circ}\text{C}$ |
| Storage temperature range   |                                              | $T_{STG}$ | $-55$ to $+125$ | $^{\circ}\text{C}$ |

## 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             |
| Punch-through voltage        | $I_{PT} = 2\mu\text{A}$                        | $V_{PT}$  | 3.5 |      |     | V             |
| Snap-back voltage            | $I_{SB} = 50\text{mA}$                         | $V_{SB}$  | 2.8 |      |     | V             |
| Reverse leakage current      | $V_{RWM} = 3.3\text{V}$                        | $I_R$     |     | 0.05 | 0.5 | $\mu\text{A}$ |
| Clamping voltage             | $I_{PP} = 1\text{A}$ , $T_p = 8/20\mu\text{s}$ | $V_C$     |     | 6    | 8   | V             |
|                              | $I_{PP} = 5\text{A}$ , $T_p = 8/20\mu\text{s}$ | $V_C$     |     |      | 13  | V             |
| Junction capacitance         | $V_R = 0\text{V}$ , $f = 1\text{MHz}$          | $C_J$     |     |      | 6   | pF            |

RATING AND CHARACTERISTIC CURVES (CPDQC3V3C-HF)

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

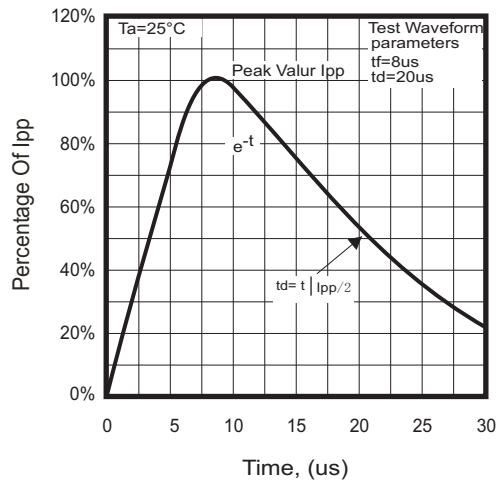


Fig.2 - Power Rating Derating Curve

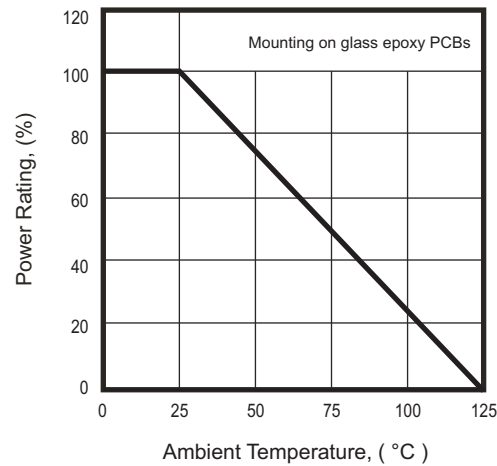


Fig.3 - Clamping Voltage Vs.  
Peak Pulse Current

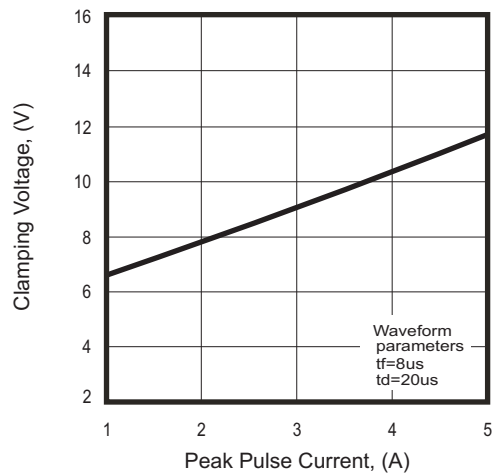
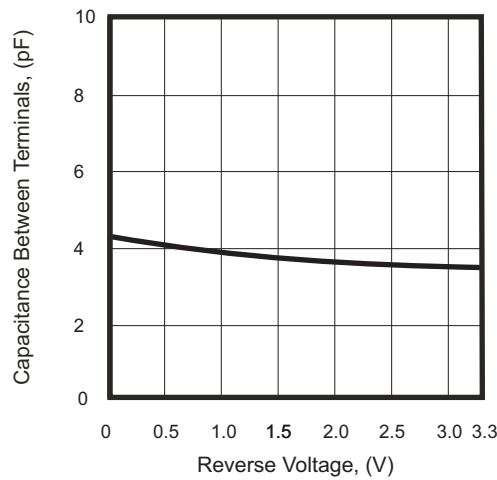
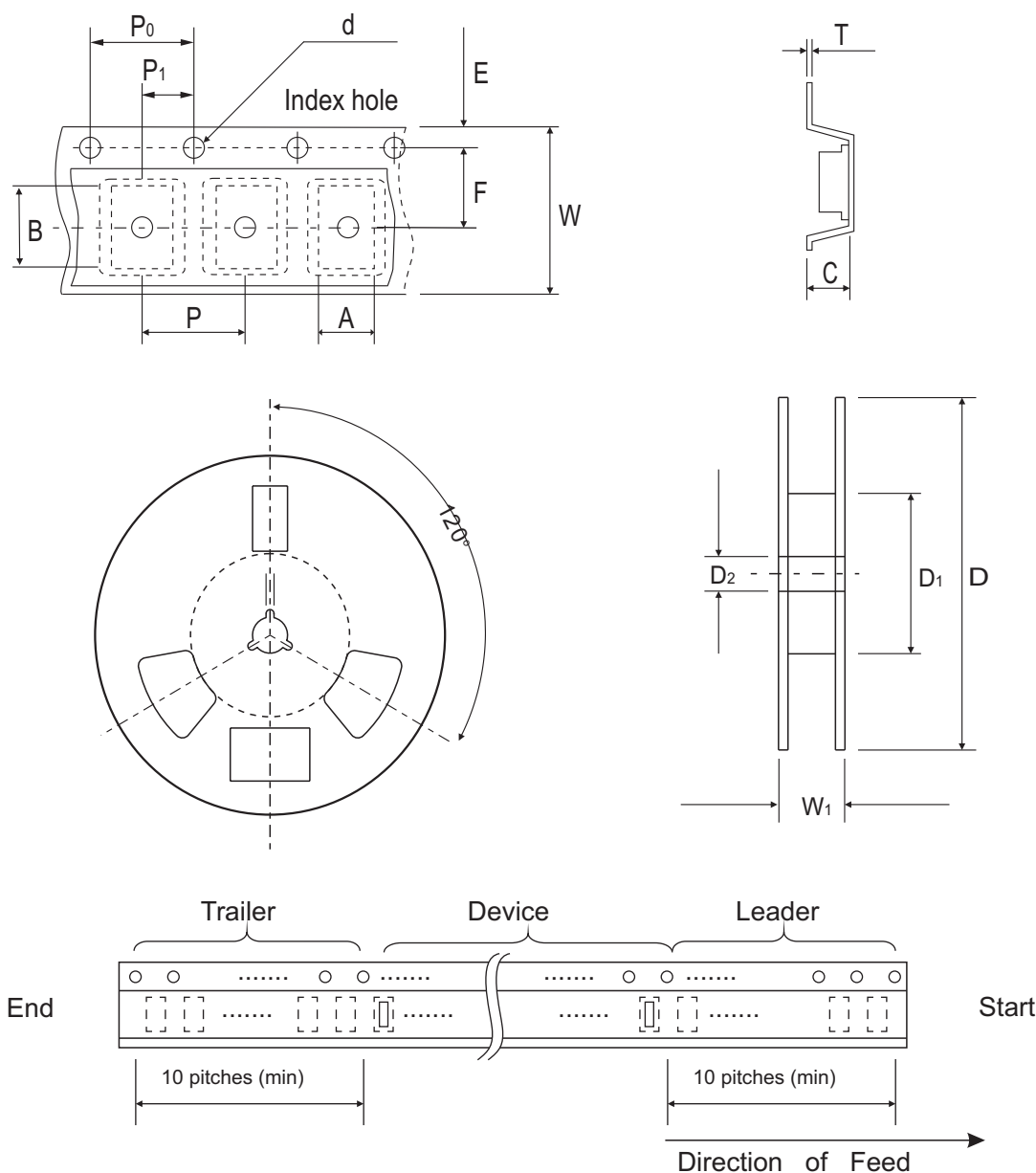


Fig.4 - Capacitance Between  
Terminals Characteristics



## Reel Taping Specification



| 0402C<br>(SOD-923F) | SYMBOL | A             | B             | C             | d                    | D             | D <sub>1</sub>       | D <sub>2</sub> |
|---------------------|--------|---------------|---------------|---------------|----------------------|---------------|----------------------|----------------|
|                     | (mm)   | 0.75 ± 0.05   | 1.17 ± 0.05   | 0.65 ± 0.05   | 1.50 + 0.10<br>- 0   | 178 ± 1       | 60.0 + 0.50<br>- 0   | 13.0 ± 0.20    |
|                     | (inch) | 0.030 ± 0.002 | 0.046 ± 0.002 | 0.026 ± 0.002 | 0.059 + 0.004<br>- 0 | 7.008 ± 0.039 | 2.362 + 0.020<br>- 0 | 0.512 ± 0.008  |

| 0402C<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 ± 0.10   | 4.00 ± 0.10   | 4.00 ± 0.10    | 2.00 ± 0.10    | 0.20 + 0.02<br>- 0.05    | 8.00 ± 0.20   | 12.0 + 0.50/-0 |
|                     | (inch) | 0.069 ± 0.004 | 0.138 ± 0.004 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.004  | 0.008 + 0.001<br>- 0.002 | 0.315 ± 0.008 | 0.472 ± 0.006  |

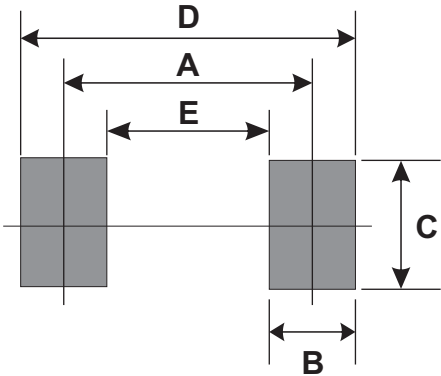
Marking Code

| Part Number  | Marking Code |
|--------------|--------------|
| CPDQC3V3C-HF | E3           |



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                   |