

## ACPDQC5V0U-HF

### RoHS Device

### Halogen Free



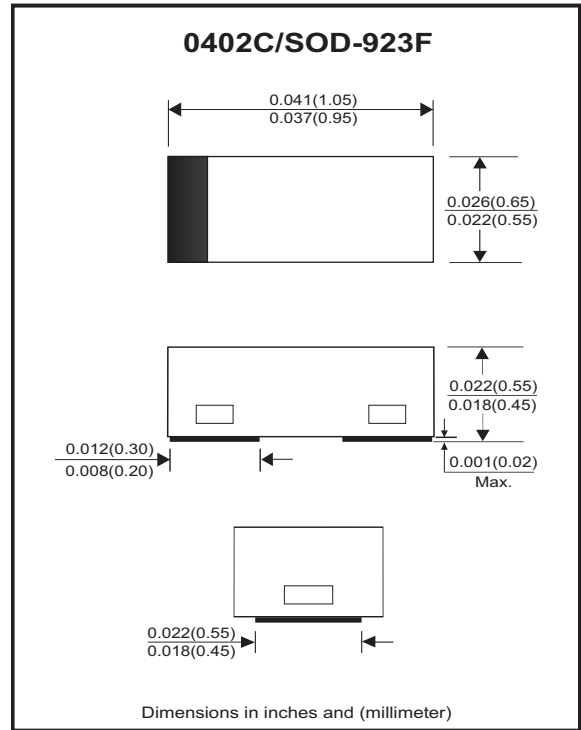
### Features

- Uni-directional ESD protection.
- IEC 61000-4-2 (ESD) ;  $\pm 30\text{KV}$ (contact)
- Surface mount package.
- Ultra small SMD package:0402.
- High component density.
- Comply with AEC-Q101

### 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            | $T_P = 8/20\mu\text{s}$ | $P_{PP}$  | 180             | W                |
| Peak pulse current          | $T_P = 8/20\mu\text{s}$ | $I_{PP}$  | 15              | 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   |                         | $T_{STG}$ | $-40 \sim +150$ | $^\circ\text{C}$ |

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

| Parameter                    | Conditions                                   | Symbol    | Min | Typ | Max | Unit          |
|------------------------------|--|-----------|-----|-----|-----|---------------|
| Working peak reverse voltage |  | $V_{RWM}$ |     |     | 5.0 | V             |
| Forward voltage              | $I_F = 10\text{mA}$                          | $V_F$     |     | 0.8 | 1.2 | V             |
| Breakdown voltage            | $I_T = 1\text{mA}$                           | $V_{BR}$  | 6   |     |     | V             |
| Reverse leakage current      | $V_{RWM} = 5\text{V}$                        | $I_R$     |     | 0.2 | 2.0 | $\mu\text{A}$ |
| Clamping voltage             | $I_{PP} = 1\text{A}, T_P = 8/20\mu\text{s}$  | $V_C$     |     |     | 7.6 | V             |
|                              | $I_{PP} = 5\text{A}, T_P = 8/20\mu\text{s}$  |           |     | 8   | 9.4 |               |
|                              | $I_{PP} = 15\text{A}, T_P = 8/20\mu\text{s}$ |           |     | 10  | 12  |               |
| Junction capacitance         | $V_R = 0\text{V}, f = 1\text{MHz}$           | $C_J$     |     | 130 |     | pF            |

## RATING AND CHARACTERISTIC CURVES (ACPDQC5V0U-HF)

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

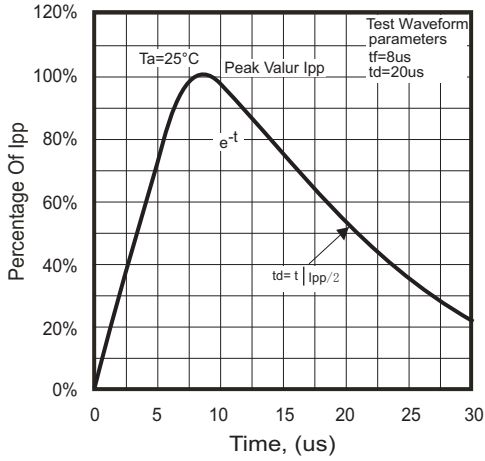


Fig.2 - Power Rating Derating Curve

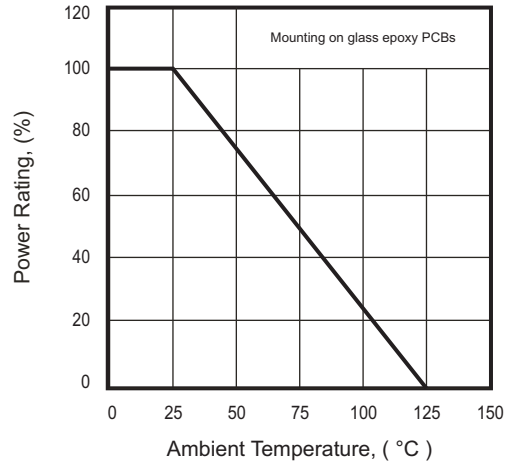


Fig.3 - Clamping Voltage Vs. Peak Pulse Current

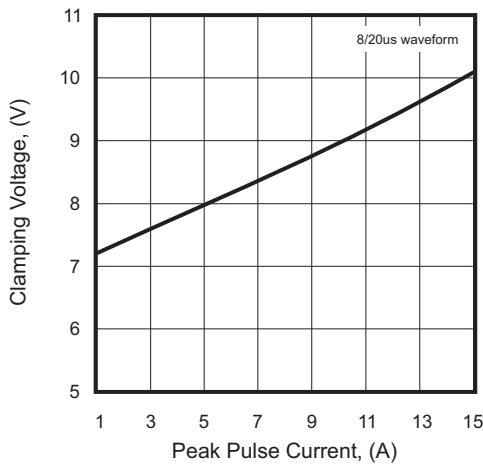


Fig.4 - Forward Characteristic

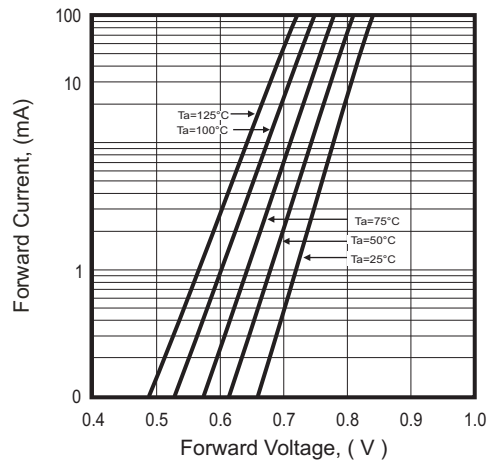
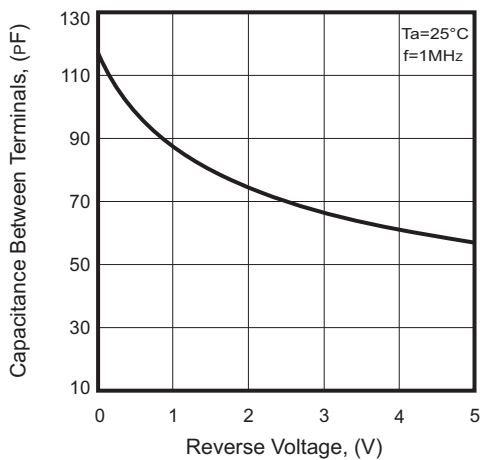
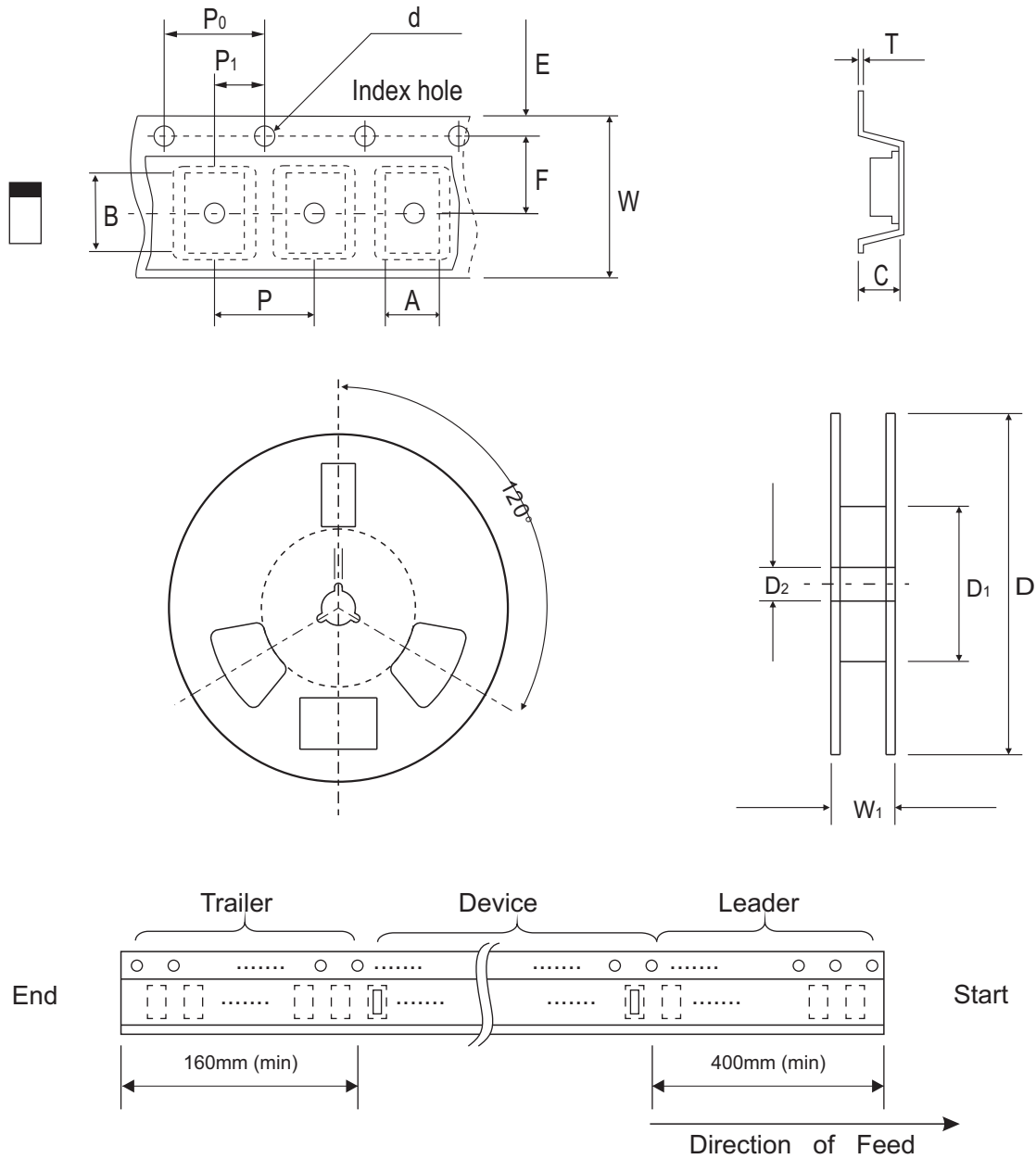


Fig.5 - Capacitance Between Terminals Characteristics



## 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   | 178.00 ± 1.00 | 60.00 ± 0.50   | 13.50 ± 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  | 0.531 ± 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   | 12.00 + 0.50<br>- 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 + 0.020<br>- 0 |

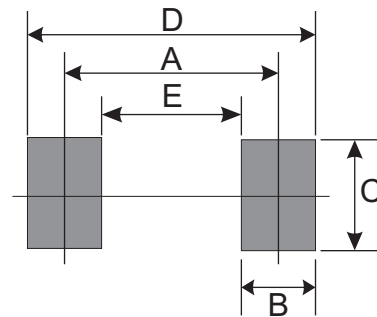
## Marking Code

| Part Number   | Marking Code |
|---------------|--------------|
| ACPDQC5V0U-HF | E5           |



## 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 ( pcs ) | Reel Size (inch) |
| 0402C/SOD-923F | 5,000        | 7                |