

## ACPDQC5V0USC-HF

### High-Reliability and High-Performance

### RoHS Device

### Halogen Free



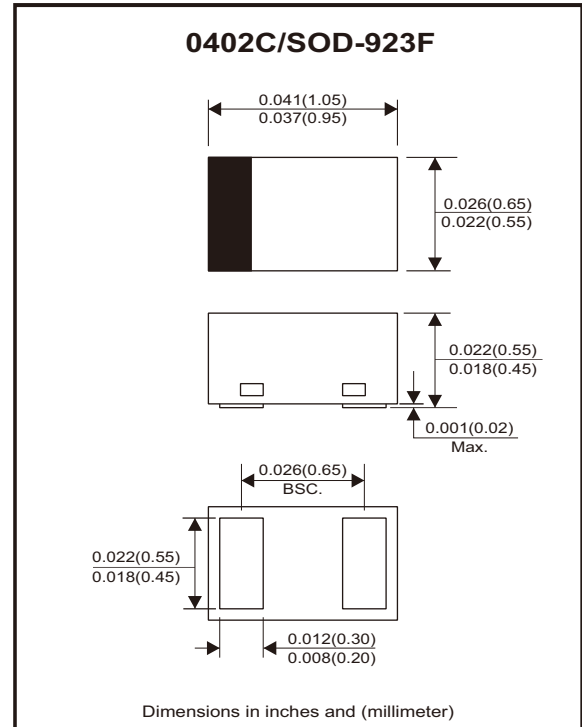
### Features

- Uni-directional ESD protection.
- IEC 61000-4-2 Level 4 ESD protection.
- Ultra small SMD package:0402C.
- Surface mount package.
- High component density.
- AEC-Q101 Qualified.

### Mechanical data

- Case: 0402C/SOD-923F standard package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end.
- Mounting position: Any.
- Weight: 0.001 grams (approx.).

### Circuit Diagram



### Maximum Rating (at TA=25°C unless otherwise noted)

| Parameter                   | Conditions                                   | Symbol           | Value       | Unit |
|-----------------------------|--|------------------|-------------|------|
| Peak pulse power            | T <sub>P</sub> = 8/20μs                      | P <sub>PP</sub>  | 45          | W    |
| Peak pulse current          | T <sub>P</sub> = 8/20μs                      | I <sub>PP</sub>  | 3           | A    |
| ESD capability              | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact) | ESD              | ±30<br>±26  | kV   |
| Operating temperature range |  | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage temperature range   |  | T <sub>STG</sub> | -55 to +150 | °C   |

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

| Parameter                    | Conditions   | Symbol           | Min | Typ      | Max      | Unit |
|------------------------------|--|------------------|-----|----------|----------|------|
| Working peak reverse voltage |  | V <sub>RWM</sub> |     |          | 5        | V    |
| Forward voltage              | I <sub>F</sub> = 10mA  | V <sub>F</sub>   |     |          | 1.2      | V    |
| Breakdown voltage            | I <sub>T</sub> = 1mA   | V <sub>BR</sub>  | 5.6 |          |          | V    |
| Reverse leakage current      | V <sub>RWM</sub> = 5V  | I <sub>R</sub>   |     |          | 0.1      | μA   |
| Clamping voltage             | I <sub>PP</sub> = 1A, T <sub>P</sub> = 8/20μs<br>I <sub>PP</sub> = 3A, T <sub>P</sub> = 8/20μs | V <sub>C</sub>   |     | 10<br>13 | 12<br>15 | V    |
| Junction capacitance         | V <sub>R</sub> = 0V, f = 1MHz  | C <sub>J</sub>   |     | 0.4      | 0.5      | pF   |

## Rating and Characteristic Curves (ACPDQC5V0SC-HF)

Fig.1 - 8/20 $\mu$ s Peak Pulse Current Waveform Acc. IEC 61000-4-5

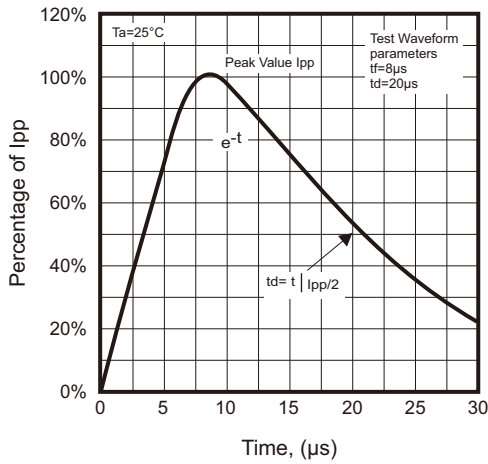


Fig.2 - Power Rating Derating Curve

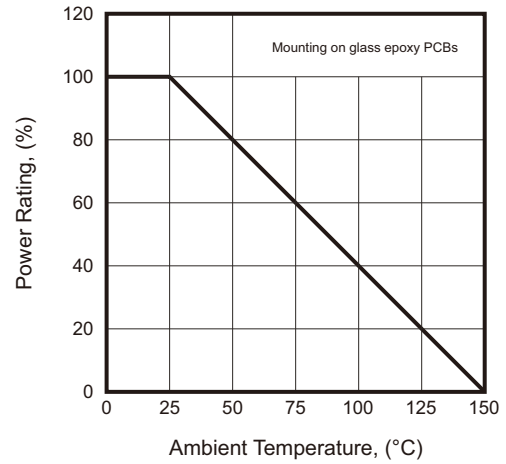


Fig.3 - Typical Clamping Voltage vs. Peak Pulse Current

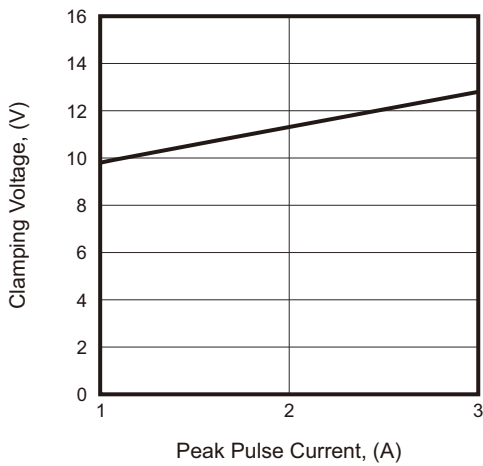
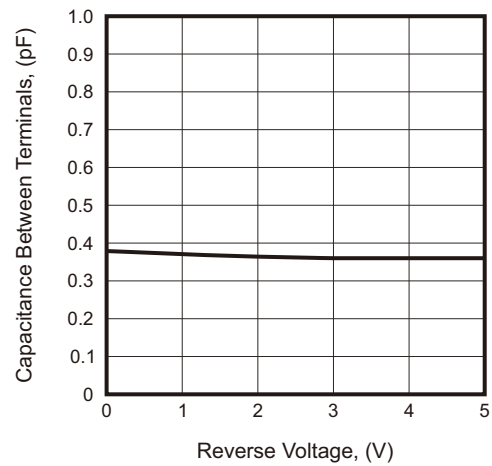
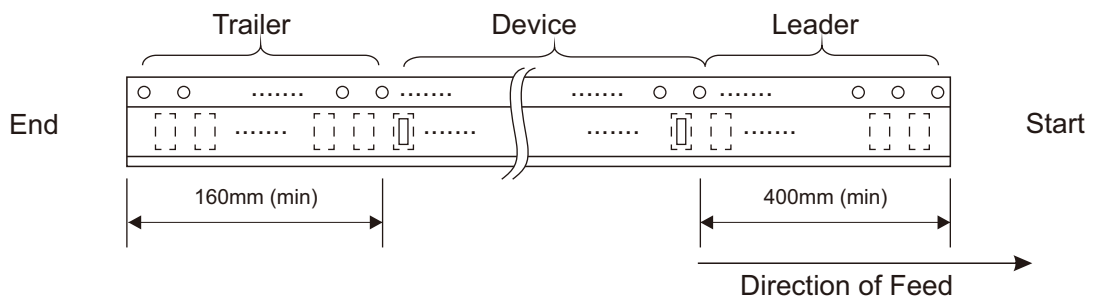
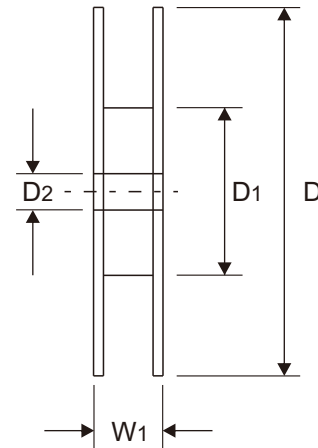
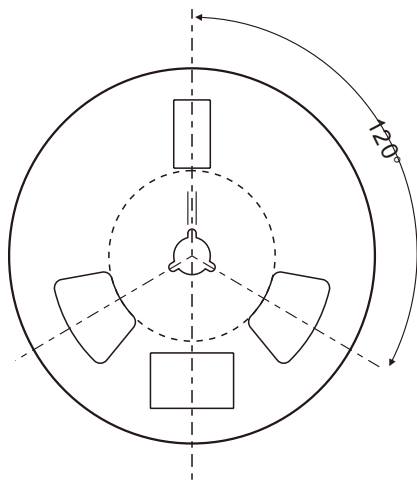
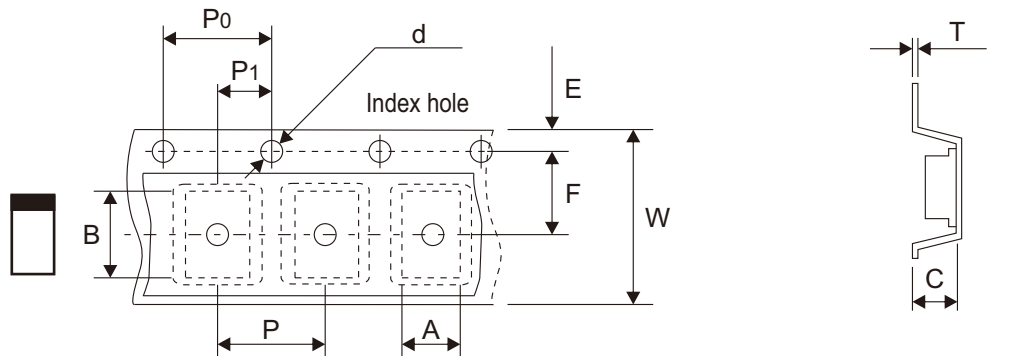


Fig.4 - Typical Capacitance Between Terminals Characteristics



## Reel Taping Specification



| 0402C<br>(SOD-923F) | SYMBOL | A             | B             | C             | d                        | D             | D1            | D2            |
|---------------------|--------|---------------|---------------|---------------|--------------------------|---------------|---------------|---------------|
|                     | (mm)   | 0.75 ± 0.05   | 1.17 ± 0.05   | 0.65 ± 0.05   | 1.50 + 0.10<br>- 0.00    | 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>- 0.000 | 7.008 ± 0.039 | 2.362 ± 0.020 | 0.531 ± 0.008 |

| 0402C<br>(SOD-923F) | SYMBOL | E             | F             | P             | P0            | P1            | T                        | W             | W1                       |
|---------------------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|--------------------------|
|                     | (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>- 0.00   |
|                     | (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>- 0.000 |

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

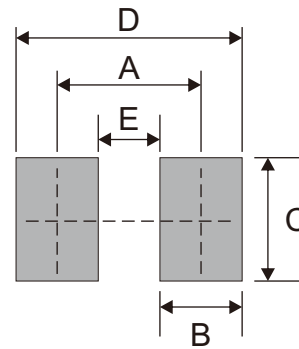
## Marking Code

| Part Number     | Marking Code |
|-----------------|--------------|
| ACPDQC5V0USC-HF | 5SC          |



## Suggested P.C.B. PAD Layout

| SIZE | 0402C/SOD-923F |        |
|------|----------------|--------|
|      | (mm)           | (inch) |
| A    | 0.70           | 0.028  |
| B    | 0.40           | 0.016  |
| C    | 0.60           | 0.024  |
| 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                |