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## SMD ESD Protection Diode



# CPDU24V0U-HF

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



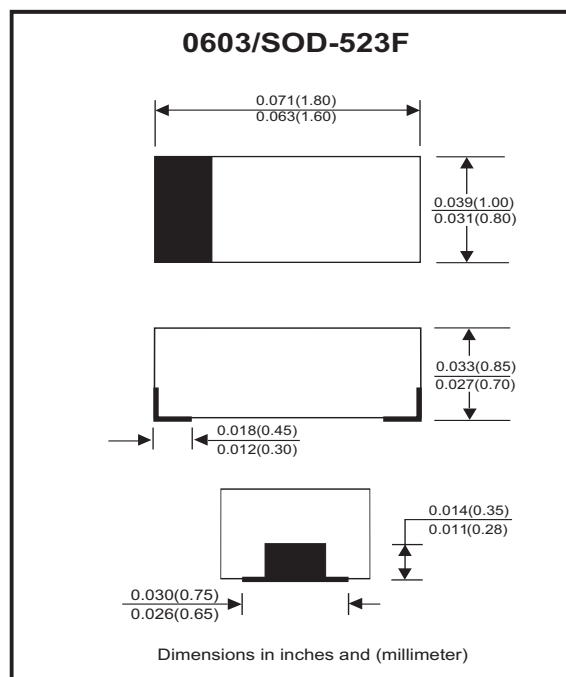
### Features

- Uni-directional ESD protection.
- Surface mount package.
- High component density.

### Mechanical data

- Case: 0603/SOD-523F standard package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750,method 2026.
- Mounting position: Any.
- Weight: 0.003 grams(approx.).

### Circuit Diagram



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

| Parameter                   | Conditions                                                                                   | Symbol           | Min  | Typ | Max      | Unit |
|-----------------------------|----------------------------------------------------------------------------------------------|------------------|------|-----|----------|------|
| Forward voltage             | I <sub>F</sub> = 10mA                                                                        | V <sub>F</sub>   |      | 0.8 | 1.2      | V    |
| Diode breakdown voltage     | I <sub>R</sub> = 1mA                                                                         | V <sub>BD</sub>  | 26.5 |     |          | V    |
| Leakage current             | V <sub>R</sub> = 24V                                                                         | I <sub>L</sub>   |      |     | 0.25     | uA   |
| Junction capacitance        | V <sub>R</sub> = 0V, f = 1MHz                                                                | C <sub>T</sub>   |      |     | 35       | pF   |
| ESD capability              | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact)                                                 | ESD              |      |     | 20<br>15 | kV   |
| Clamping voltage            | I <sub>PP</sub> = 1A, T <sub>P</sub> =8/20us<br>I <sub>PP</sub> = 3A, T <sub>P</sub> =8/20us | V <sub>C</sub>   |      |     | 38<br>50 | V    |
| Peak pulse power            |                                                                                              | P <sub>PP</sub>  |      |     | 150      | W    |
| Operation temperature range |                                                                                              | T <sub>J</sub>   | -55  |     | 125      | °C   |
| Storage temperature range   |                                                                                              | T <sub>STG</sub> | -55  |     | 150      | °C   |

## SMD ESD Protection Diode

### RATING AND CHARACTERISTIC CURVES (CPDU24V0U-HF)

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

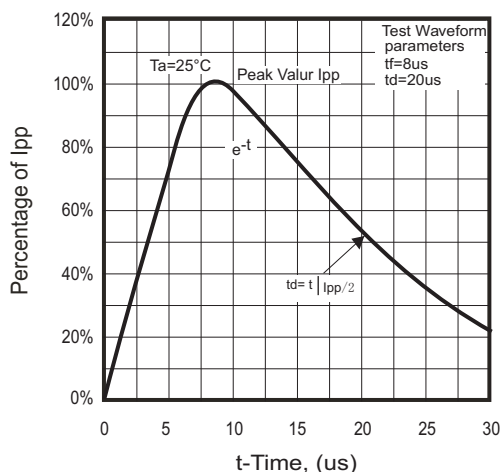


Fig.2 - Power Rating Derating Curve

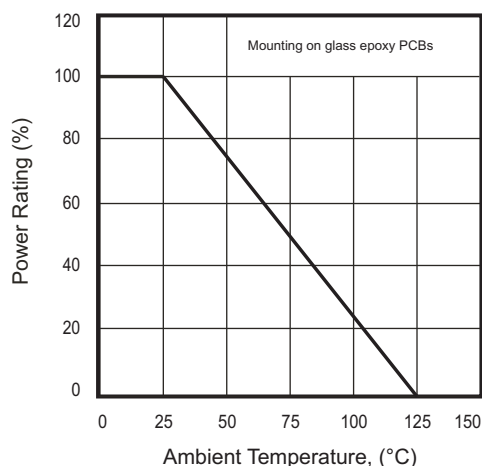


Fig.3 - Clamping Voltage Vs. Peak Pulse Current

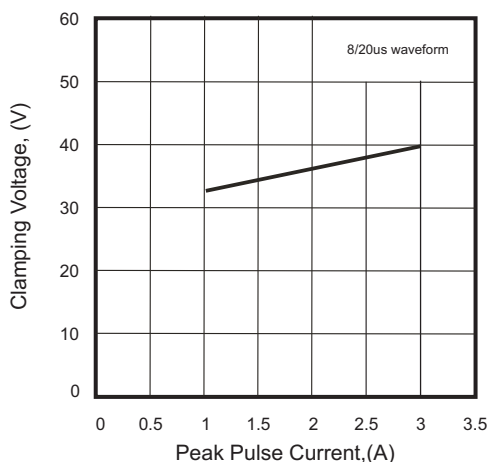


Fig.4 - Clamping Voltage Vs. Forward Peak Pulse Current

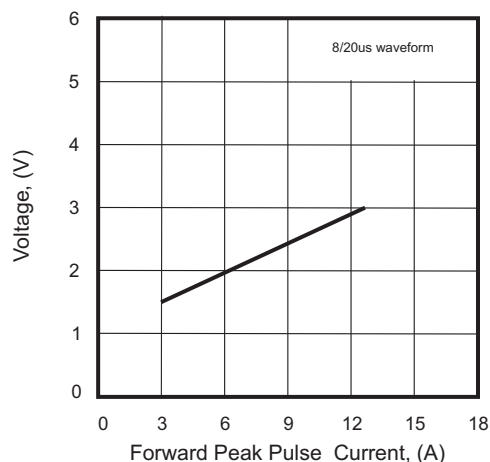
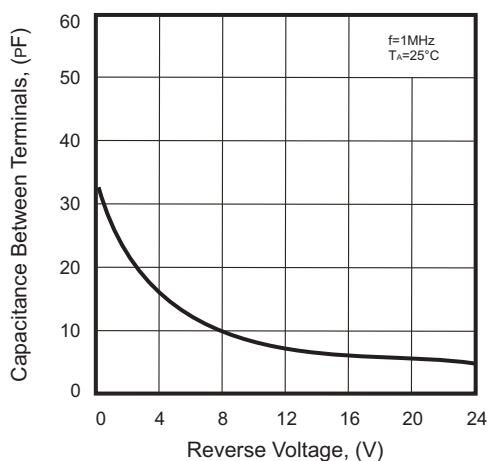
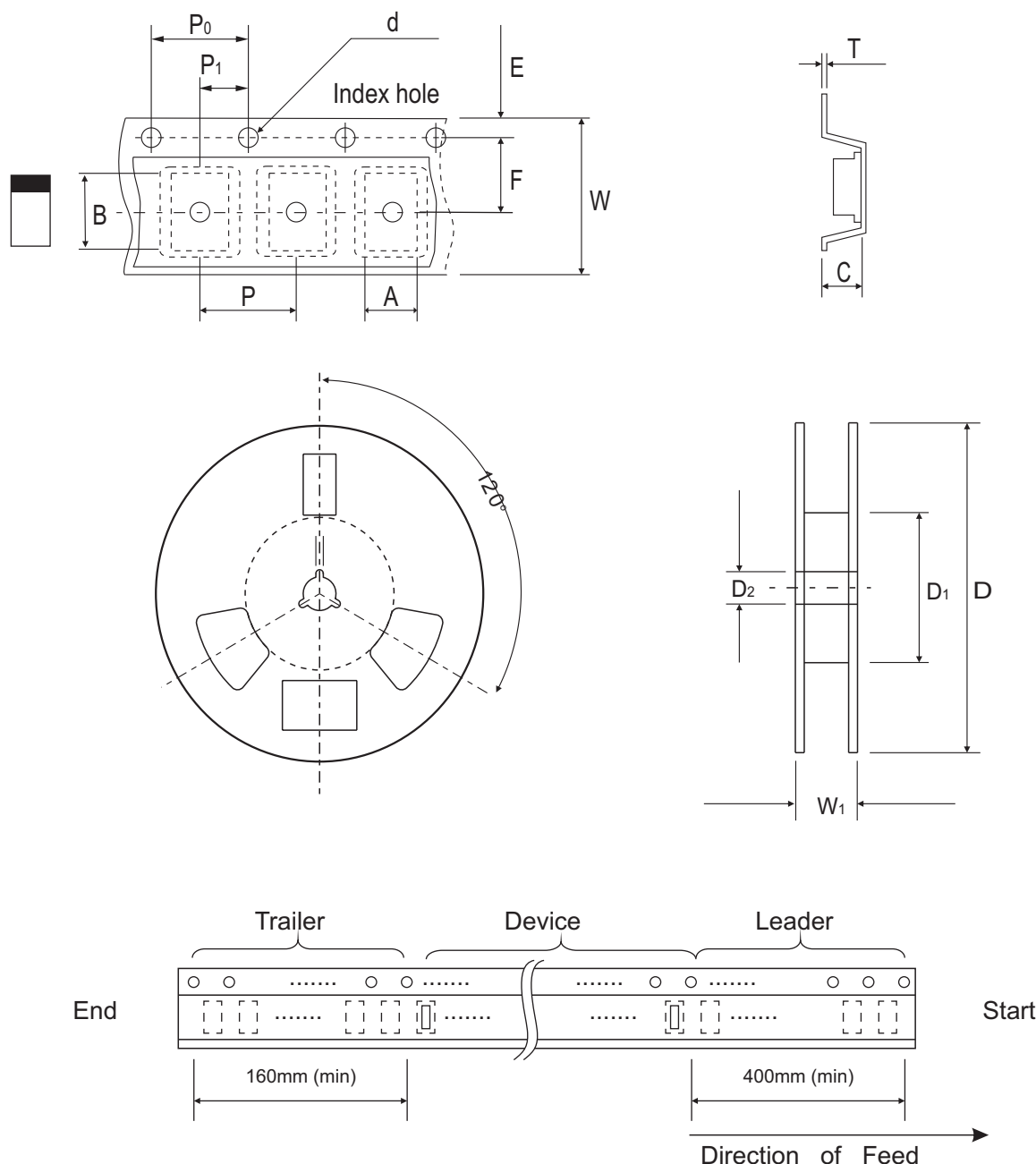


Fig.5 - Capacitance Between Terminals Characteristics



## SMD ESD Protection Diode

### Reel Taping Specification



| 0603<br>(SOD-523) | SYMBOL | A             | B             | C             | d                    | D             | D <sub>1</sub> | D <sub>2</sub> |
|-------------------|--------|---------------|---------------|---------------|----------------------|---------------|----------------|----------------|
|                   | (mm)   | 1.16 ± 0.10   | 1.90 ± 0.10   | 0.95 ± 0.10   | 1.50 + 0.10<br>- 0   | 178.00 ± 1.00 | 60.0 ± 0.50    | 13.50 ± 0.20   |
|                   | (inch) | 0.046 ± 0.004 | 0.075 ± 0.004 | 0.037 ± 0.004 | 0.059 + 0.004<br>- 0 | 7.008 ± 0.039 | 2.362 ± 0.020  | 0.531 ± 0.008  |

| 0603<br>(SOD-523) | 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 ± 0.05    | 0.22 + 0.10<br>- 0.05    | 8.00 ± 0.20   | 12.00 + 0.50<br>- 0  |
|                   | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.002  | 0.009 + 0.004<br>- 0.002 | 0.315 ± 0.008 | 0.472 + 0.020<br>- 0 |

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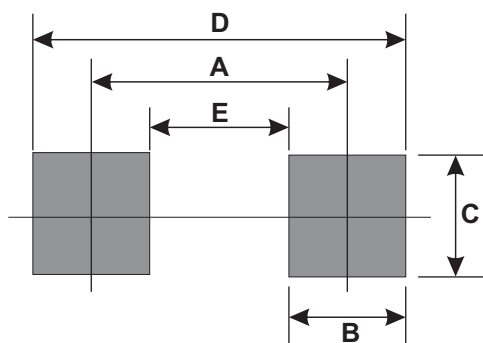
### Marking Code

| Part Number  | Marking Code |
|--------------|--------------|
| CPDU24V0U-HF | E24          |



### Suggested PAD Layout

| SIZE | 0603/SOD-523F |        |
|------|---------------|--------|
|      | (mm)          | (inch) |
| A    | 1.70          | 0.067  |
| B    | 0.60          | 0.024  |
| C    | 0.80          | 0.031  |
| D    | 2.30          | 0.091  |
| E    | 1.10          | 0.043  |



### Standard Packaging

| Case Type     | REEL PACK       |                     |
|---------------|-----------------|---------------------|
|               | REEL<br>( pcs ) | Reel Size<br>(inch) |
| 0603/SOD-523F | 4,000           | 7                   |