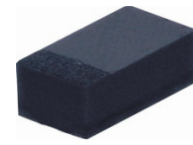


## CPDER12V0U-HF

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



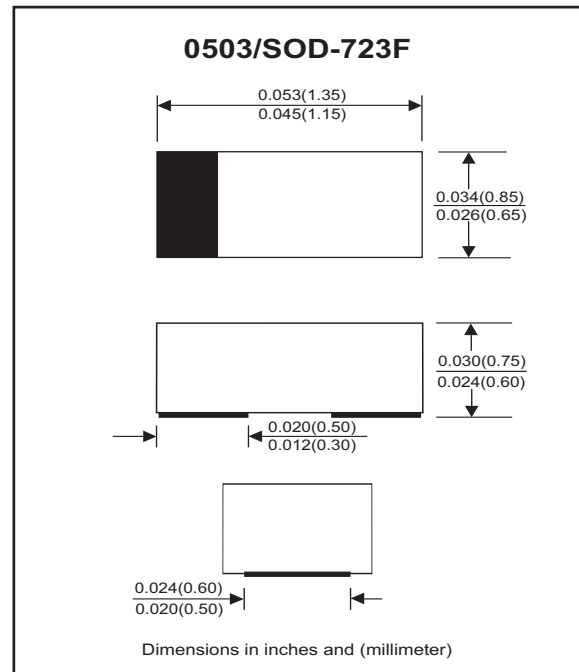
### Features

- Uni-directional ESD protection
- Ultra small SMD package:0503.
- High component density.

### Mechanical data

- Case: 0503/SOD-523F Standard package , molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026.
- Marking Code: Cathode band & E12
- Mounting position: Any.
- Weight: 0.002 grams(approx.).

### Circuit Diagram



### Maximum Rating And Electrical Characteristics

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

| Parameter                   | Conditions                                                                             | Symbol    | Min  | Typ  | Max      | Unit               |
|-----------------------------|----------------------------------------------------------------------------------------|-----------|------|------|----------|--------------------|
| Forward voltage             | $I_F = 10\text{mA}$                                                                    | $V_F$     |      | 0.8  |          | V                  |
| Diode breakdown voltage     | $I_R = 1\text{mA}$                                                                     | $V_{BD}$  | 13.3 | 15.5 | 17.5     | V                  |
| Leakage current             | $V_R = 12\text{V}$                                                                     | $I_L$     |      | 0.1  | 1.0      | $\mu\text{A}$      |
| Junction capacitance        | $V_R = 0\text{V}, f = 1\text{MHz}$                                                     | $C_T$     |      |      | 60       | pF                 |
| ESD capability              | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact)                                           | ESD       |      |      | 30       | kV                 |
| Clamping voltage            | $I_{PP} = 1\text{A}, T_P=8/20\mu\text{s}$<br>$I_{PP} = 5\text{A}, T_P=8/20\mu\text{s}$ | $V_C$     |      |      | 19<br>24 | V                  |
| Peak pulse power            |                                                                                        | $P_{PP}$  |      |      | 120      | W                  |
| Operation temperature range |                                                                                        | $T_J$     | -55  |      | 125      | $^{\circ}\text{C}$ |
| Storage temperature range   |                                                                                        | $T_{STG}$ | -55  |      | 150      | $^{\circ}\text{C}$ |

## RATING AND CHARACTERISTIC CURVES (CPDER12V0U-HF)

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

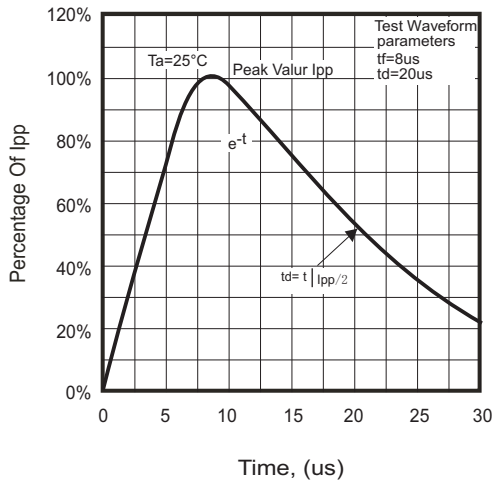


Fig.2 - Power Rating Derating Curve

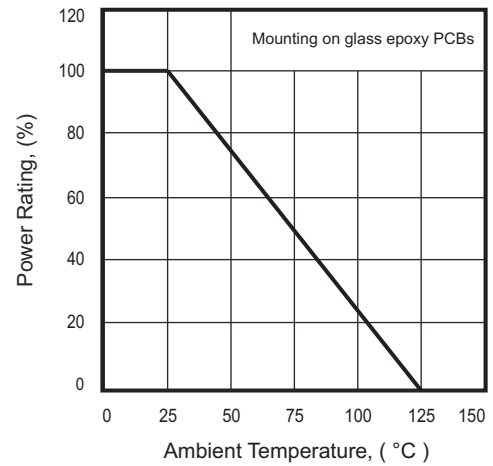


Fig.3 - Clamping Voltage Vs.  
Peak Pulse Current

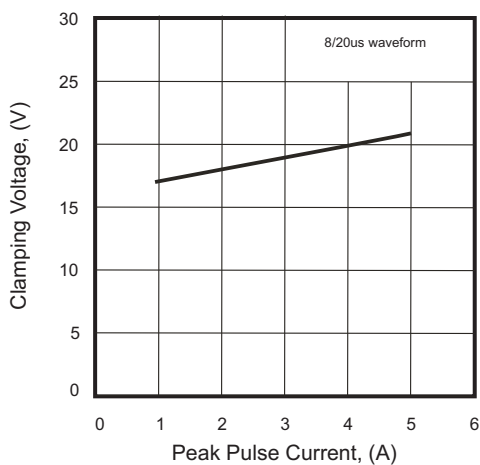


Fig.4 - Clamping Voltage Vs. Forward  
Peak Pulse Current

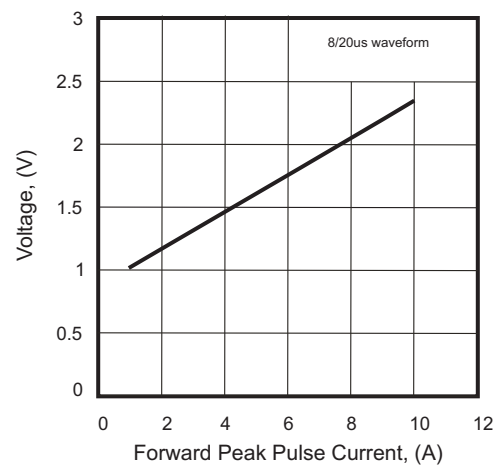
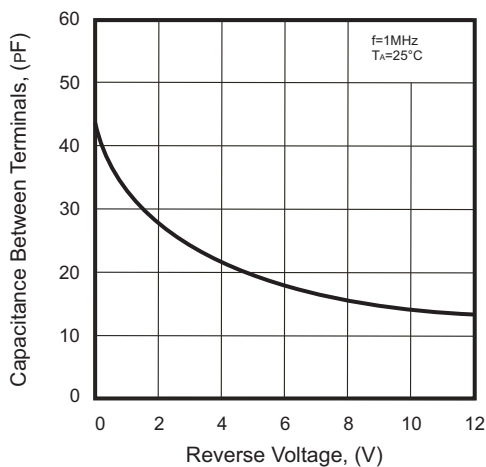
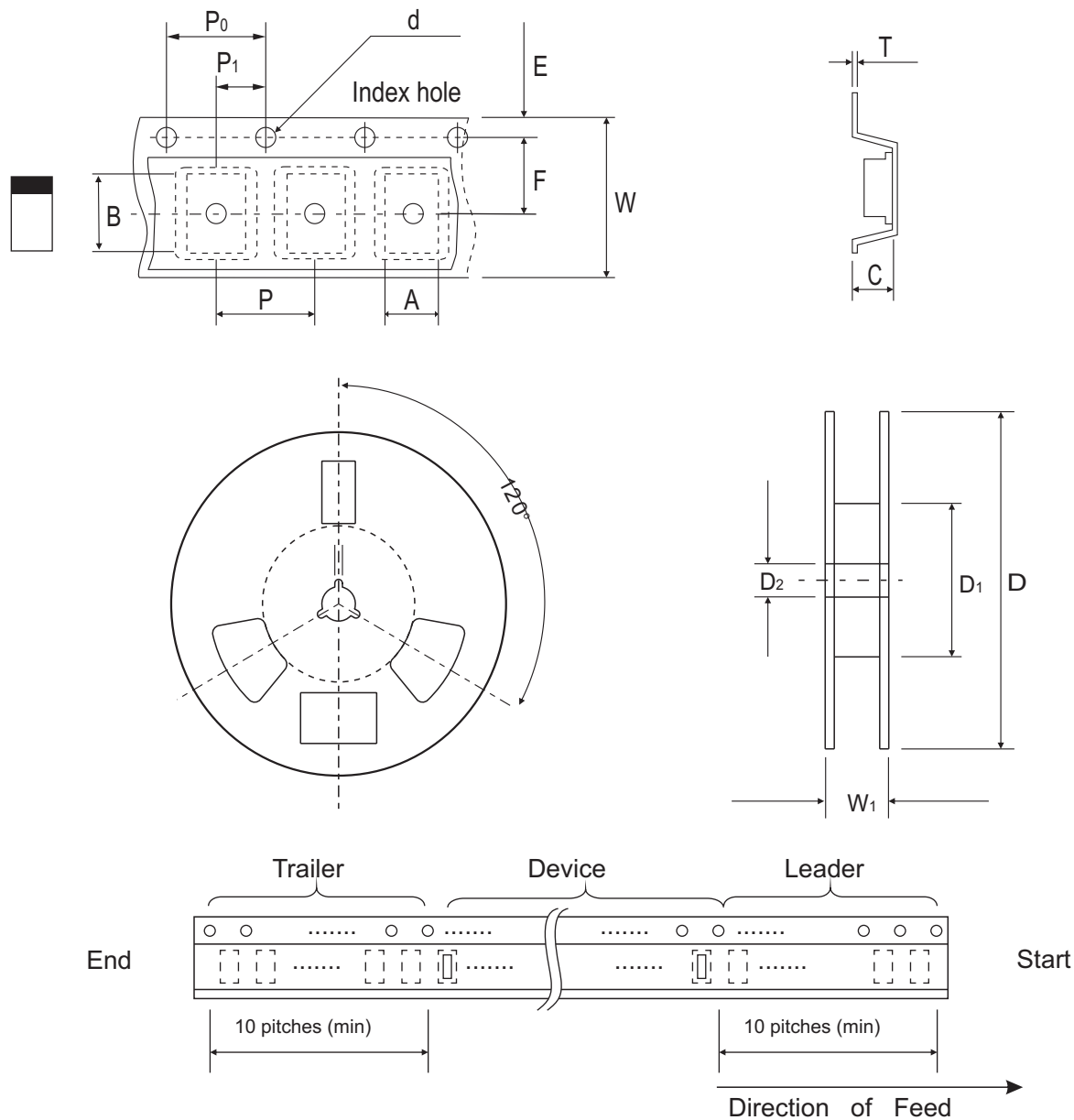


Fig.5 - Capacitance Between  
Terminals Characteristics



Reel Taping Specification



| 0503<br>(SOD-723F) | SYMBOL | A             | B             | C             | d             | D            | D <sub>1</sub> | D <sub>2</sub> |
|--------------------|--------|---------------|---------------|---------------|---------------|--------------|----------------|----------------|
|                    | (mm)   | 0.90 ± 0.10   | 1.46 ± 0.10   | 0.80 ± 0.10   | 1.55 ± 0.05   | 178 ± 1      | 60.0 MIN.      | 13.0 ± 0.20    |
|                    | (inch) | 0.035 ± 0.004 | 0.057 ± 0.004 | 0.031 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.04 | 2.362 MIN.     | 0.512 ± 0.008  |

| 0503<br>(SOD-723F) | 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 ± 0.05   | 8.00 ± 0.20   | 13.5 MAX.      |
|                    | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.002  | 0.009 ± 0.002 | 0.314 ± 0.008 | 0.531 MAX.     |

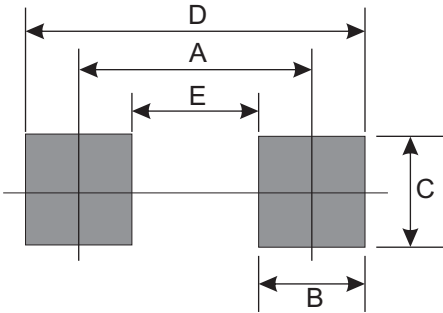
Marking Code

| Part Number   | Marking Code |
|---------------|--------------|
| CPDER12V0U-HF | E12          |



Suggested PAD Layout

| SIZE | 0503/SOD-723F |        |
|------|---------------|--------|
|      | (mm)          | (inch) |
| A    | 0.85          | 0.033  |
| B    | 0.55          | 0.022  |
| C    | 0.85          | 0.033  |
| D    | 1.40          | 0.055  |
| E    | 0.30          | 0.012  |



Standard Packaging

| Case Type     | Qty Per Reel | Reel Size |
|---------------|--------------|-----------|
|               | (Pcs)        | (inch)    |
| 0503/SOD-723F | 4,000        | 7         |

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