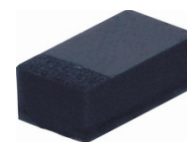


## CPDER12V0U

### RoHS Device

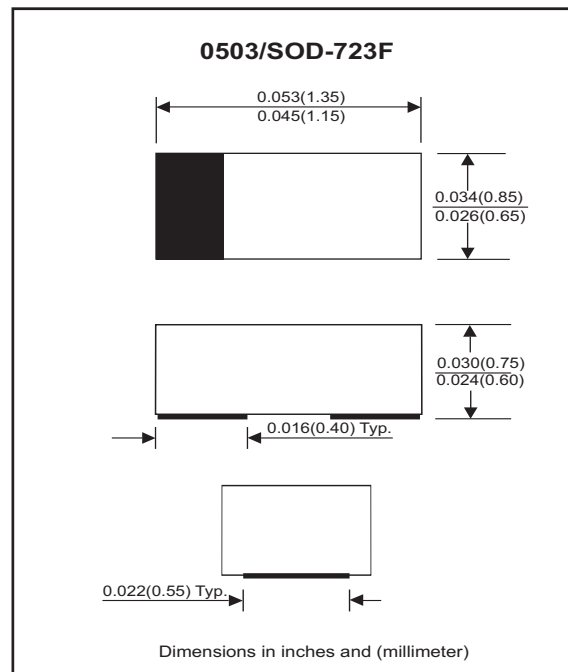


### Features

- Uni-directional ESD protection
- Working voltage:12V
- Ultra small SMD package:0503.
- High component density.

### Mechanical data

- Case: 0503/SOD723F 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 gram (approx.).



### 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  |          | V    |
| Diode breakdown voltage | I <sub>R</sub> = 1mA                                                                         | V <sub>BD</sub>  | 13.3 | 15.5 | 17.5     | V    |
| Leakage current         | V <sub>R</sub> = 12V                                                                         | I <sub>L</sub>   |      | 0.1  | 1.0      | uA   |
| Junction capacitance    | V <sub>R</sub> = 0V, f = 1MHz                                                                | C <sub>T</sub>   |      |      | 60       | pF   |
| ESD capability          | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact)                                                 | ESD              |      |      | 30       | kV   |
| Clamping voltage        | I <sub>PP</sub> = 1A, T <sub>p</sub> =8/20us<br>I <sub>PP</sub> = 5A, T <sub>p</sub> =8/20us | V <sub>C</sub>   |      |      | 19<br>24 | V    |
| Peak pulse power        |                                                                                              | P <sub>PP</sub>  |      |      | 120      | W    |
| Operation temperature   |                                                                                              | T <sub>J</sub>   |      |      | 125      | °C   |
| Storage temperature     |                                                                                              | T <sub>STG</sub> | -55  |      | 150      | °C   |

## RATING AND CHARACTERISTIC CURVES (CPDER12V0U)

Fig. 1 - 8/20us Peak pulse current wave form acc. IEC 61000-4-5

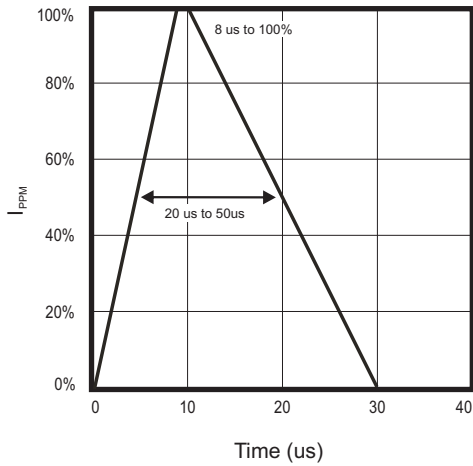


Fig. 2 - Power rating derating curve

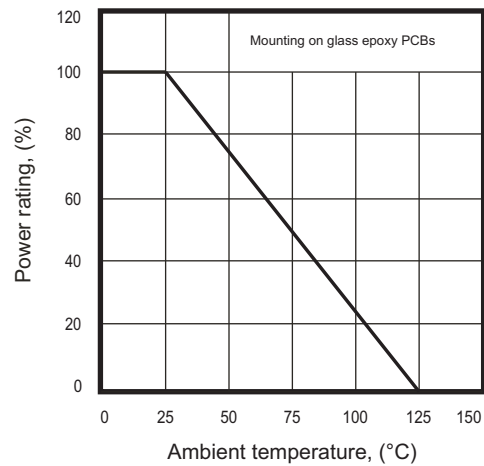


Fig. 3 - Clamping voltage vs. peak pulse current

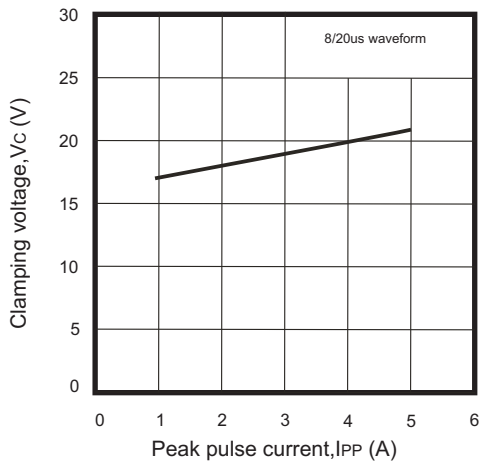


Fig. 4 - Forward voltage vs. forward current

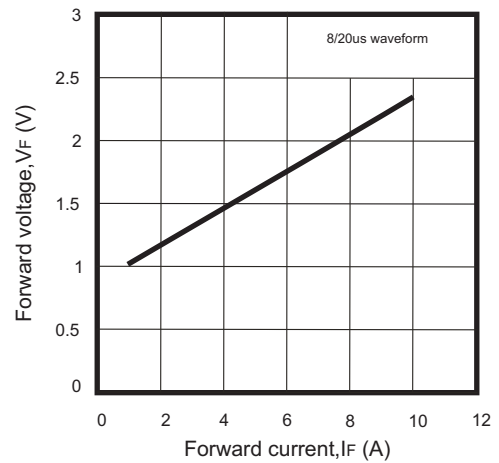
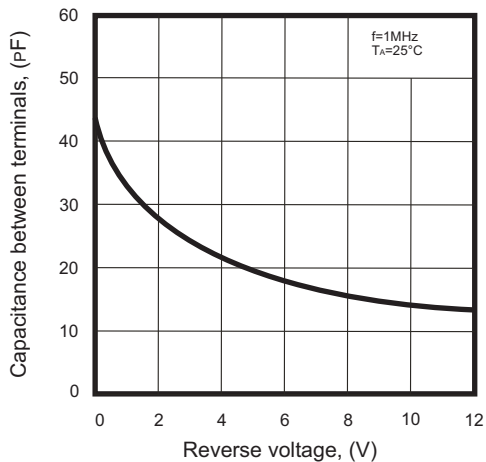
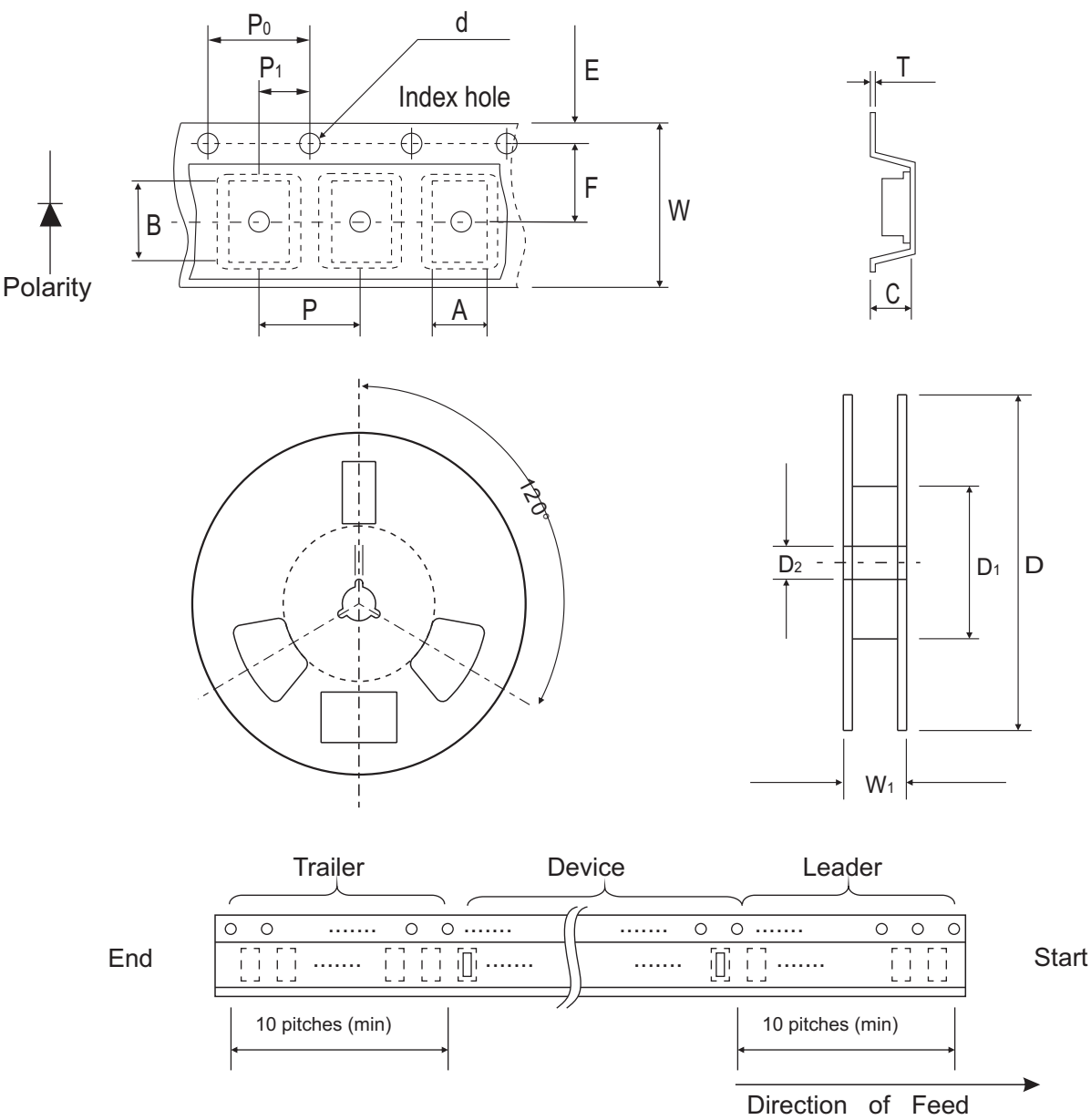


Fig. 5 - Capacitance between terminals characteristics



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 ± 0.10    | 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 ± 0.004  | 0.008 ± 0.002 | 0.315 ± 0.008 | 0.531 MAX.     |

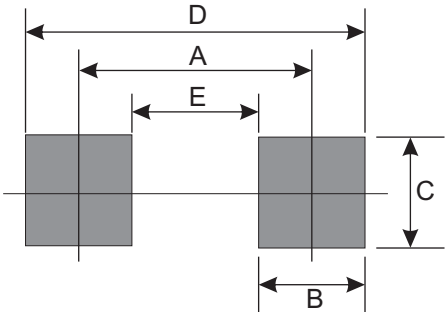
Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| CPDER12V0U  | 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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