

## CPDK Series(RoHS Device)

### Features

Bi-directional ESD protection.  
(16kV) IEC 61000-4-2 rating.  
Surface mount package.  
High component density.

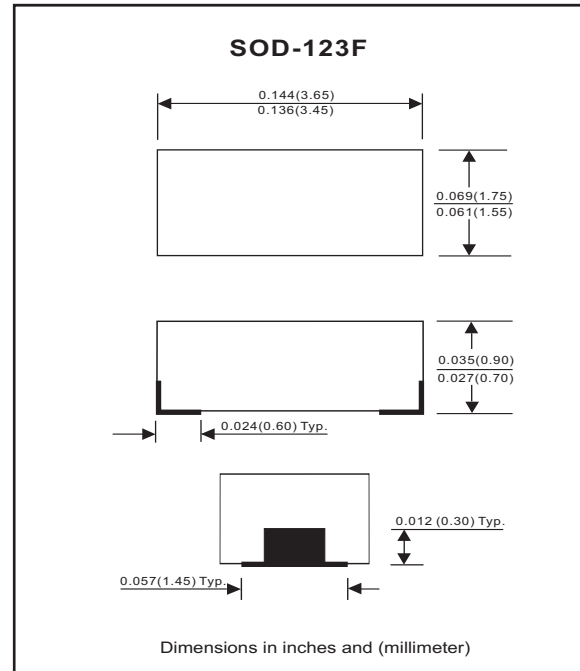


### Mechanical data

Case: SOD-123F standard package,  
molded plastic.  
Terminals: Gold plated, solderable per  
MIL-STD-750, method 2026.  
Marking Code:

CPDK5V0: E05  
CPDK12V: E12  
CPDK24V: E24  
CPDK36V: E36

Mounting position: Any.  
Weight: 0.0085 gram(approx.).



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

| Parameter                   | Conditions                                                                                  | Symbol | Min                   | Typ                   | Max                           | Unit |
|-----------------------------|---------------------------------------------------------------------------------------------|--------|-----------------------|-----------------------|-------------------------------|------|
| Diode breakdown voltage     | CPDK5V0<br>CPDK12V<br>CPDK24V<br>CPDK36V<br><br>IF = 1mA                                    | VBD    | 5.1<br>13<br>25<br>38 | 7.0<br>17<br>28<br>40 |                               | V    |
| Leakage current             | CPDK5V0<br>CPDK12V<br>CPDK24V<br>CPDK36V<br><br>VR = 5V<br>VR = 12V<br>VR = 24V<br>VR = 36V | IL     |                       | ±0.1                  | ±2.0                          | uA   |
| Capacitance                 | CPDK5V0<br>CPDK12V<br>CPDK24V<br>CPDK36V<br><br>@ 1MHz                                      | CT     |                       | 15<br>12<br>10<br>5   | 20<br>---<br>---<br>---       | pF   |
| Channel clamp voltage       | CPDK5V0<br>CPDK12V<br>CPDK24V<br>CPDK36V<br><br>8kV event                                   | VESD   |                       |                       | ± 7.0<br>± 17<br>± 25<br>± 40 | V    |
| Peak ESD voltage capability | CPDK Series<br><br>IEC 61000-4-2                                                            | VPV    |                       |                       | 16                            | kV   |
| Peak pulse current          | CPDK5V0<br>CPDK12V<br>CPDK24V<br>CPDK36V<br><br>8 / 20 us                                   | IPP *  |                       |                       | 5.1<br>1<br>1<br>1            | A    |
| Power Dissipation           | CPDK Series                                                                                 | PD     |                       |                       | 250                           | mW   |
| Operation temperature       | CPDK Series                                                                                 | Tj     |                       |                       | +125                          | °C   |
| Storage temperature         | CPDK Series                                                                                 | TSTG   | -55                   |                       | +150                          | °C   |

\* one diode conducting.

RATING AND CHARACTERISTIC CURVES (CPDK Series)

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

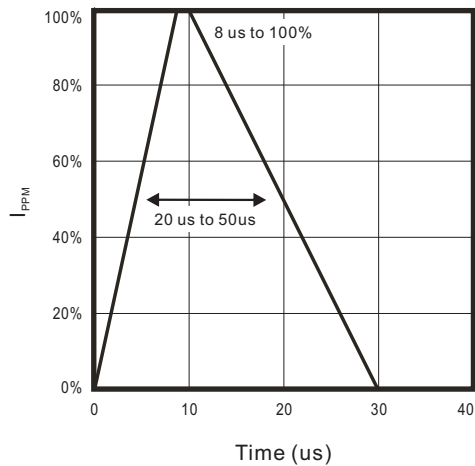


Fig. 2 - Reverse characteristics

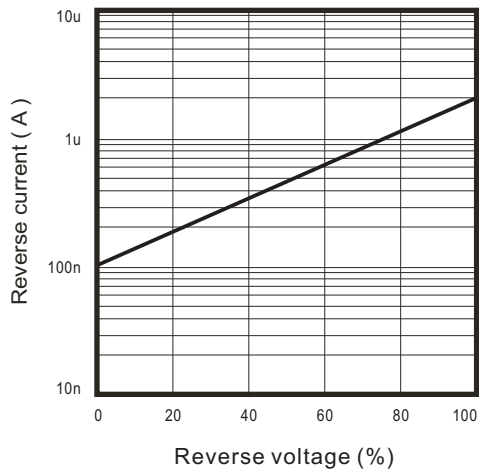


Fig. 3 - Capacitance between terminals characteristics

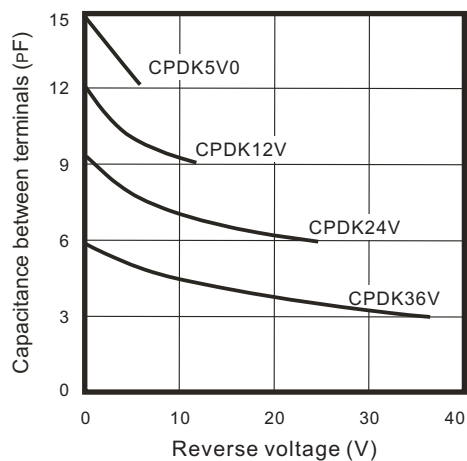
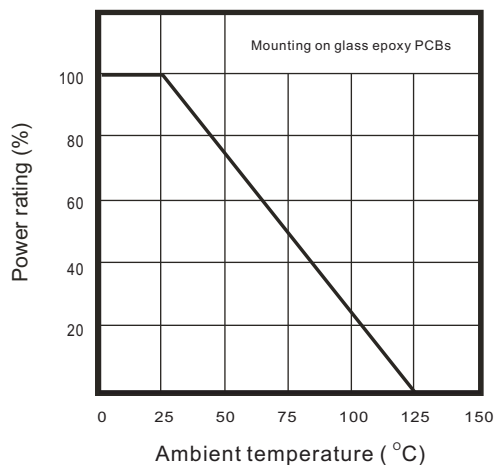
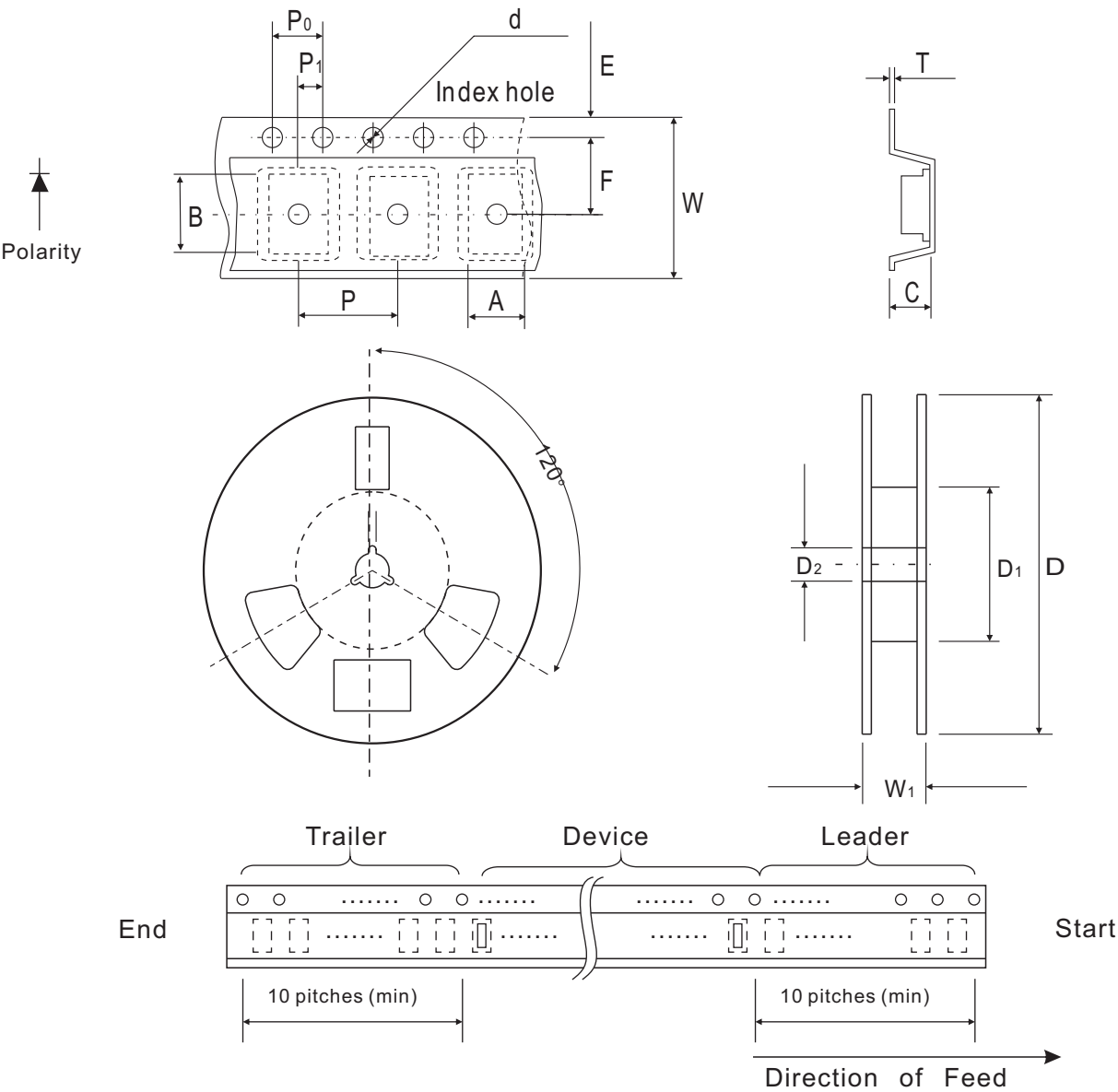


Fig. 4 - Power rating derating curve



## Reel Taping Specification



| K<br>SOD-123F | SYMBOL | A             | B             | C             | d             | D            | D <sub>1</sub> | D <sub>2</sub> |
|---------------|--------|---------------|---------------|---------------|---------------|--------------|----------------|----------------|
|               | (mm)   | 1.90 ± 0.10   | 4.00 ± 0.10   | 1.50 ± 0.10   | 1.55 ± 0.10   | 178 ± 1      | 50.0 MIN.      | 13.0 ± 0.20    |
|               | (inch) | 0.075 ± 0.004 | 0.157 ± 0.004 | 0.059 ± 0.004 | 0.061 ± 0.004 | 7.008 ± 0.04 | 1.969 MIN.     | 0.512 ± 0.008  |

| K<br>SOD-123F | 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    | 0.30 ± 0.05   | 8.00 ± 0.20   | 14.4 MAX.      |
|               | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004  | 0.079 ± 0.004  | 0.012 ± 0.002 | 0.315 ± 0.008 | 0.567 MAX.     |

Marking Code

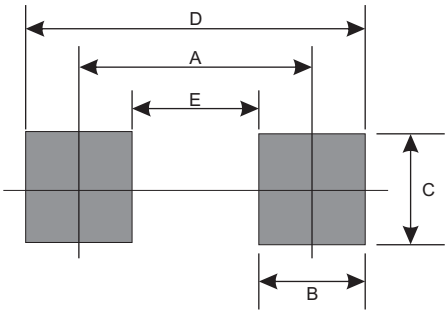
| Park Number | Marking Code |
|-------------|--------------|
| CPDK5V0     | E05          |
| CPDK12V     | E12          |
| CPDK24V     | E24          |
| CPDK36V     | E36          |



xxx = Product type marking code

Suggested PAD Layout

| SIZE | K/SOD-123F |        |
|------|------------|--------|
|      | (mm)       | (inch) |
| A    | 3.45       | 0.136  |
| B    | 1.30       | 0.051  |
| C    | 1.60       | 0.063  |
| D    | 4.75       | 0.187  |
| E    | 2.15       | 0.085  |



Standard Package

| Case Type  | Qty per Reel | Reel Size |
|------------|--------------|-----------|
|            | (Pcs)        | (inch)    |
| K/SOD-123F | 4000         | 7         |