

# CPDUC24VE-HF

## High-Reliability and High-Performance

### RoHS Device

### Halogen Free



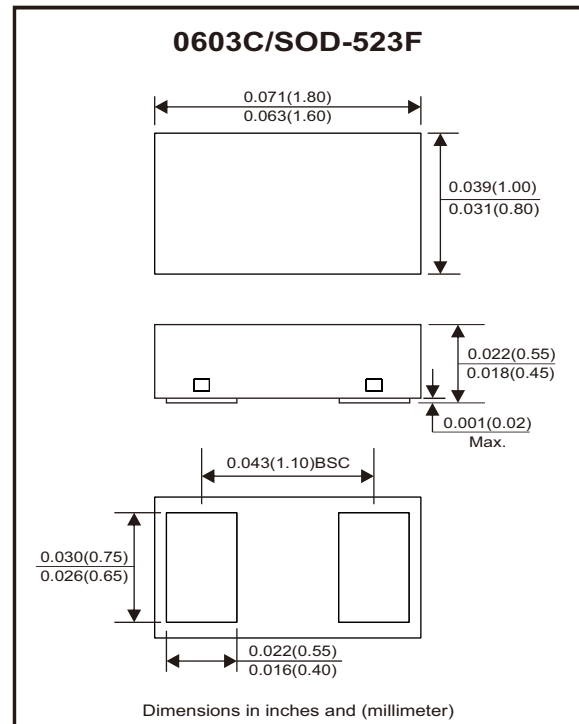
#### Features

- Bi-directional ESD protection.
- IEC 61000-4-2 (ESD) ;  $\pm 30\text{KV}$ (contact).
- Surface mount package.
- Ultra small SMD package: 0603C.
- High component density.

#### Mechanical data

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

#### Circuit Diagram



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

| Parameter                   | Conditions                                   | Symbol    | Value         | Unit             |
|-----------------------------|----------------------------------------------|-----------|---------------|------------------|
| Peak pulse power            | $T_P = 8/20\mu\text{s}$                      | $P_{PP}$  | 138           | W                |
| Peak pulse current          | $T_P = 8/20\mu\text{s}$                      | $I_{PP}$  | 3             | A                |
| ESD capability              | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact) | ESD       | $\pm 30$      | kV               |
| Operating temperature range |                                              | $T_J$     | $-55\sim+125$ | $^\circ\text{C}$ |
| Storage temperature range   |                                              | $T_{STG}$ | $-55\sim+150$ | $^\circ\text{C}$ |

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

| Parameter                    | Conditions                                                                                       | Symbol    | Min  | Typ      | Max      | Unit |
|------------------------------|--------------------------------------------------------------------------------------------------|-----------|------|----------|----------|------|
| Working peak reverse voltage |                                                                                                  | $V_{RWM}$ |      |          | 24       | V    |
| Breakdown voltage            | $I_T = 1\text{mA}$                                                                               | $V_{BR}$  | 26.5 | 28       | 32       | V    |
| Reverse leakage current      | $V_{RWM} = 24\text{V}$                                                                           | $I_R$     |      |          | 100      | nA   |
| Clamping voltage             | $I_{PP} = 1\text{A}$ , $T_P = 8/20\mu\text{s}$<br>$I_{PP} = 3\text{A}$ , $T_P = 8/20\mu\text{s}$ | $V_C$     |      | 32<br>44 | 36<br>46 | V    |
| Junction capacitance         | $V_R = 0\text{V}$ , $f = 1\text{MHz}$                                                            | $C_J$     |      | 13       | 20       | pF   |

Rating and Characteristic Curves (CPDUC24VE-HF)

Fig.1 - 8/20μs Peak Pulse Current  
Waveform ACC. IEC 61000-4-5

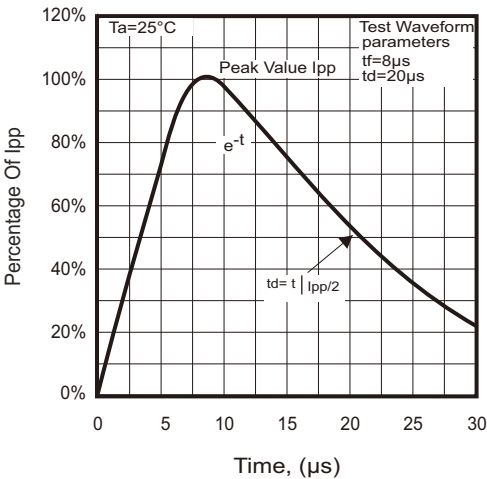


Fig.2 - Power Rating Derating Curve

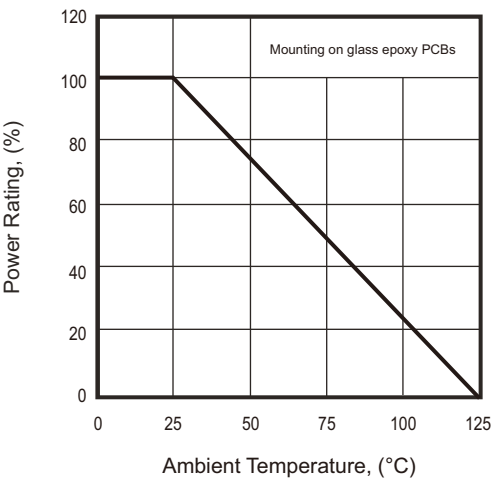


Fig.3 - Clamping Voltage Vs.  
Peak Pulse Current

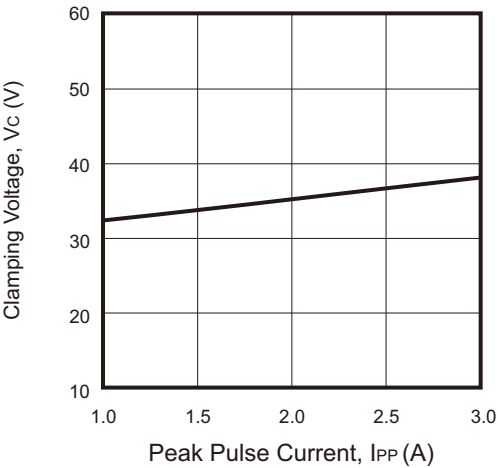
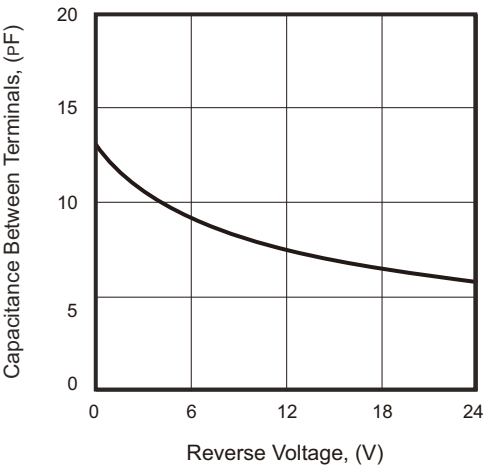
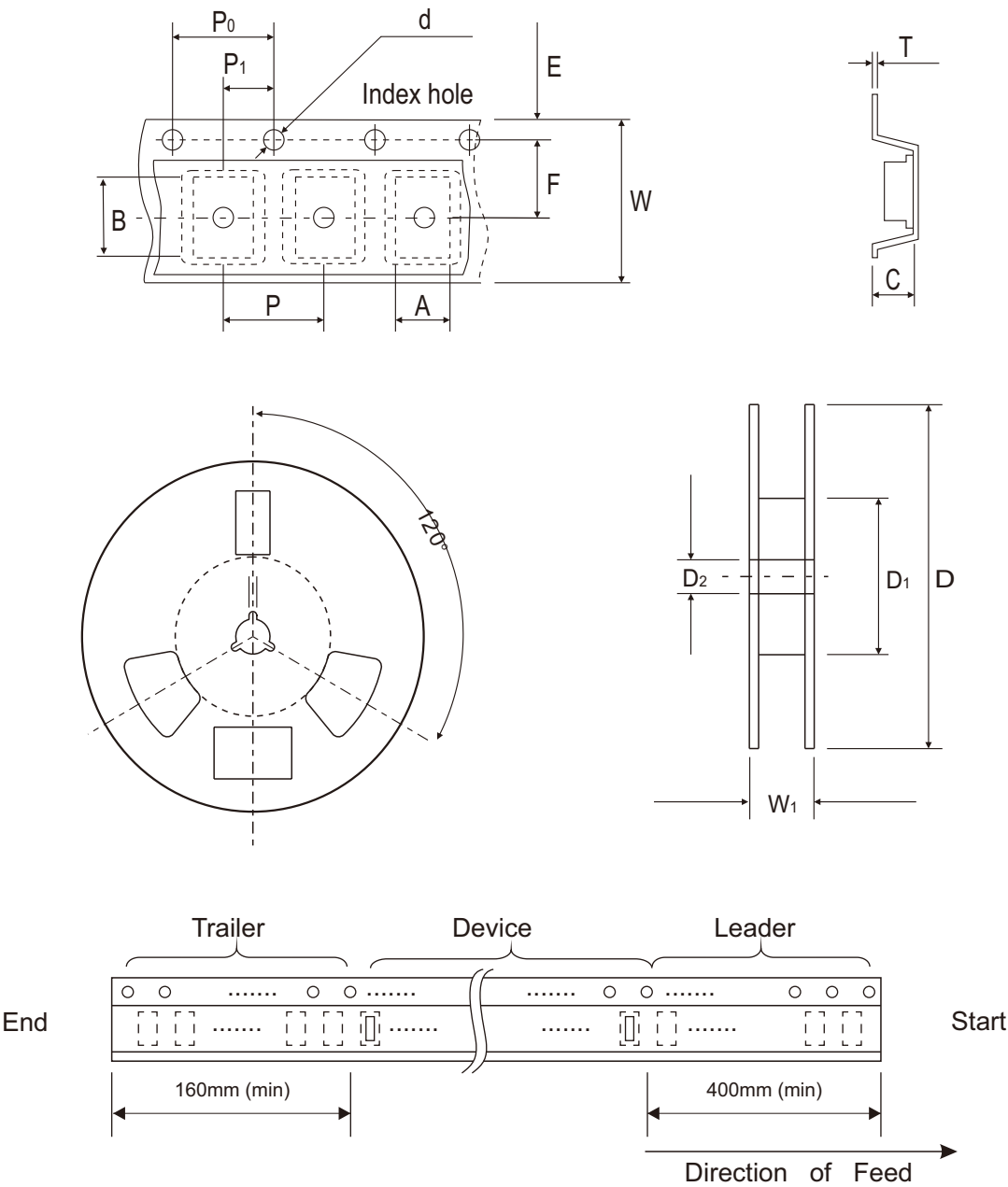


Fig.4 - Capacitance Between  
Terminals Characteristics



Reel Taping Specification



|                    |        |               |               |               |                      |               |                |                |
|--------------------|--------|---------------|---------------|---------------|----------------------|---------------|----------------|----------------|
| 0603C/<br>SOD-523F | SYMBOL | A             | B             | C             | d                    | D             | D <sub>1</sub> | D <sub>2</sub> |
|                    | (mm)   | 1.05 ± 0.05   | 1.96 ± 0.05   | 0.57 ± 0.05   | 1.50 + 0.10<br>- 0   | 178.00 ± 1.00 | 60.00 ± 0.50   | 13.50 ± 0.20   |
|                    | (inch) | 0.041 ± 0.002 | 0.077 ± 0.002 | 0.022 ± 0.002 | 0.059 + 0.004<br>- 0 | 7.008 ± 0.039 | 2.362 ± 0.020  | 0.531 ± 0.008  |

|                    |        |               |               |               |                |                |               |               |                      |
|--------------------|--------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------------|
| 0603C/<br>SOD-523F | 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 ± 0.05    | 2.00 ± 0.05    | 0.20 ± 0.03   | 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 ± 0.002  | 0.079 ± 0.002  | 0.008 ± 0.001 | 0.315 ± 0.008 | 0.472 + 0.020<br>- 0 |

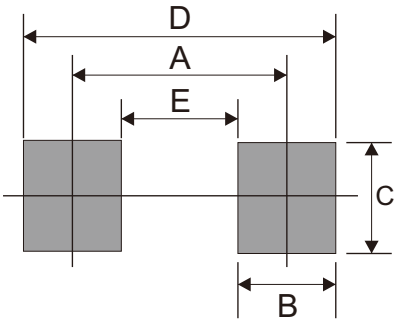
Marking Code

| Part Number  | Marking Code |
|--------------|--------------|
| CPDUC24VE-HF | E24          |



Suggested PAD Layout

| SIZE | 0603C/SOD-523F |        |
|------|----------------|--------|
|      | (mm)           | (inch) |
| A    | 1.10           | 0.043  |
| B    | 0.70           | 0.028  |
| C    | 1.00           | 0.039  |
| D    | 1.80           | 0.071  |
| E    | 0.40           | 0.016  |



Standard Packaging

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