

# CPDUC24VCWU-HF

## High-Reliability and High-Performance

### RoHS Device

### Halogen Free



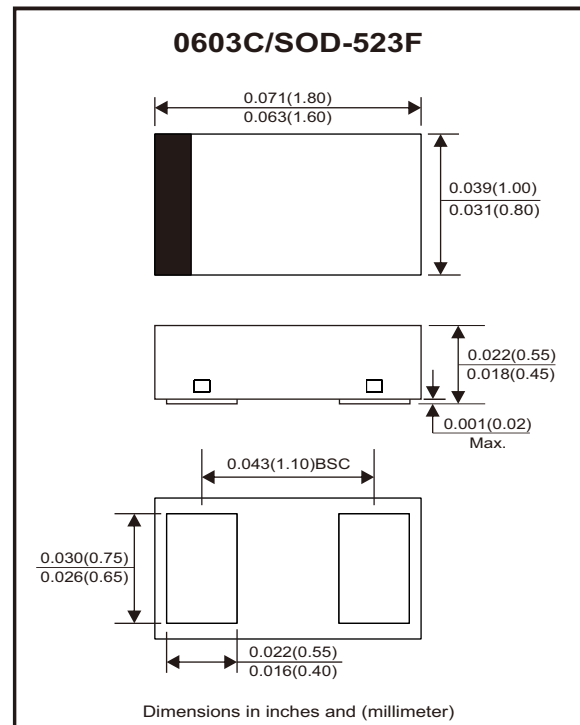
#### Features

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

#### Mechanical data

- Case: 0603C/SOD-523F package, molded plastic.
- Terminals: Gold plated, solderable per MIL-STD-750, method 2026.
- Polarity: Indicated by cathode band.
- Mounting position: Any.

#### Circuit Diagram



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

| Parameter                            | Conditions                                   | Symbol    | Value       | Unit             |
|--------------------------------------|----------------------------------------------|-----------|-------------|------------------|
| Peak pulse power                     | $T_P = 8/20\mu\text{s}$                      | $P_{PP}$  | 176         | W                |
| Peak pulse current                   | $T_P = 8/20\mu\text{s}$                      | $I_{PP}$  | 4           | A                |
| ESD capability                       | IEC 61000-4-2(air)<br>IEC 61000-4-2(contact) | ESD       | $\pm 30$    | kV               |
| Operating junction temperature range |                                              | $T_J$     | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range            |                                              | $T_{STG}$ | -55 to +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             |
| Forward voltage              | $I_F = 10\text{mA}$                         | $V_F$     |      |     | 1.2 | V             |
| Breakdown voltage            | $I_T = 1\text{mA}$                          | $V_{BR}$  | 26.5 |     | 32  | V             |
| Reverse leakage current      | $V_{RWM} = 24\text{V}$                      | $I_R$     |      |     | 0.1 | $\mu\text{A}$ |
| Clamping voltage             | $I_{PP} = 1\text{A}, T_P = 8/20\mu\text{s}$ | $V_C$     |      | 33  | 35  | V             |
|                              | $I_{PP} = 4\text{A}, T_P = 8/20\mu\text{s}$ | $V_C$     |      | 42  | 44  |               |
| Junction capacitance         | $V_R = 0\text{V}, f = 1\text{MHz}$          | $C_J$     |      | 30  |     | pF            |

Typical Rating and Characteristic Curves (CPDUC24VCWU-HF)

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

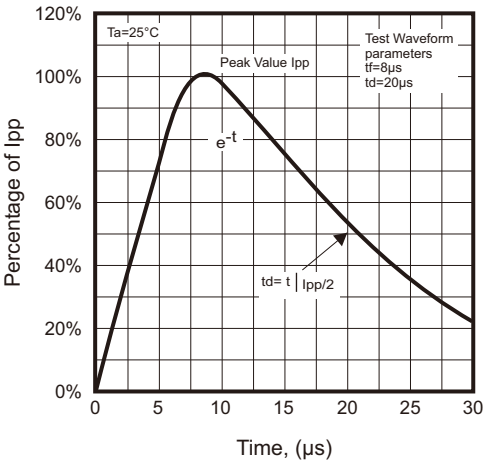


Fig.2 - Power Rating Derating Curve

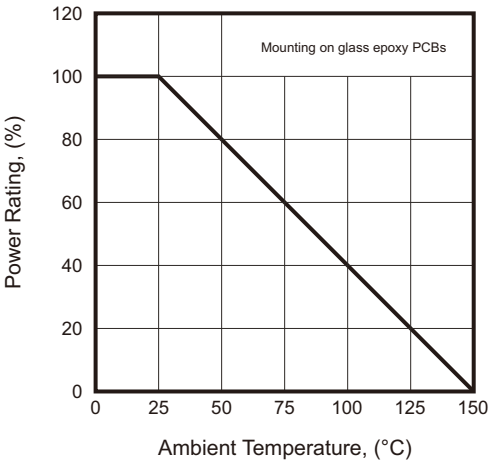


Fig.3 - Typical Clamping Voltage vs.  
Peak Pulse Current

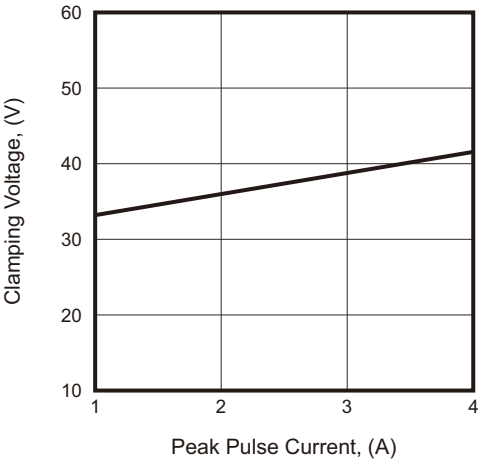
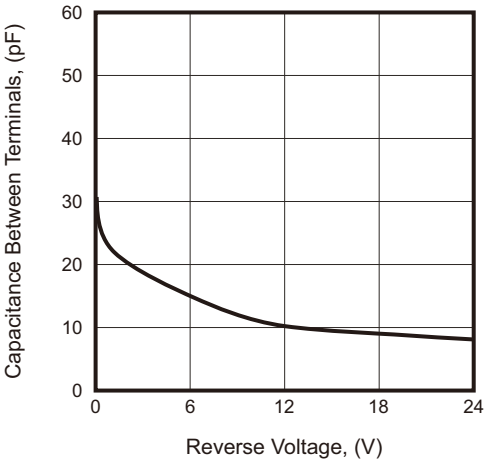
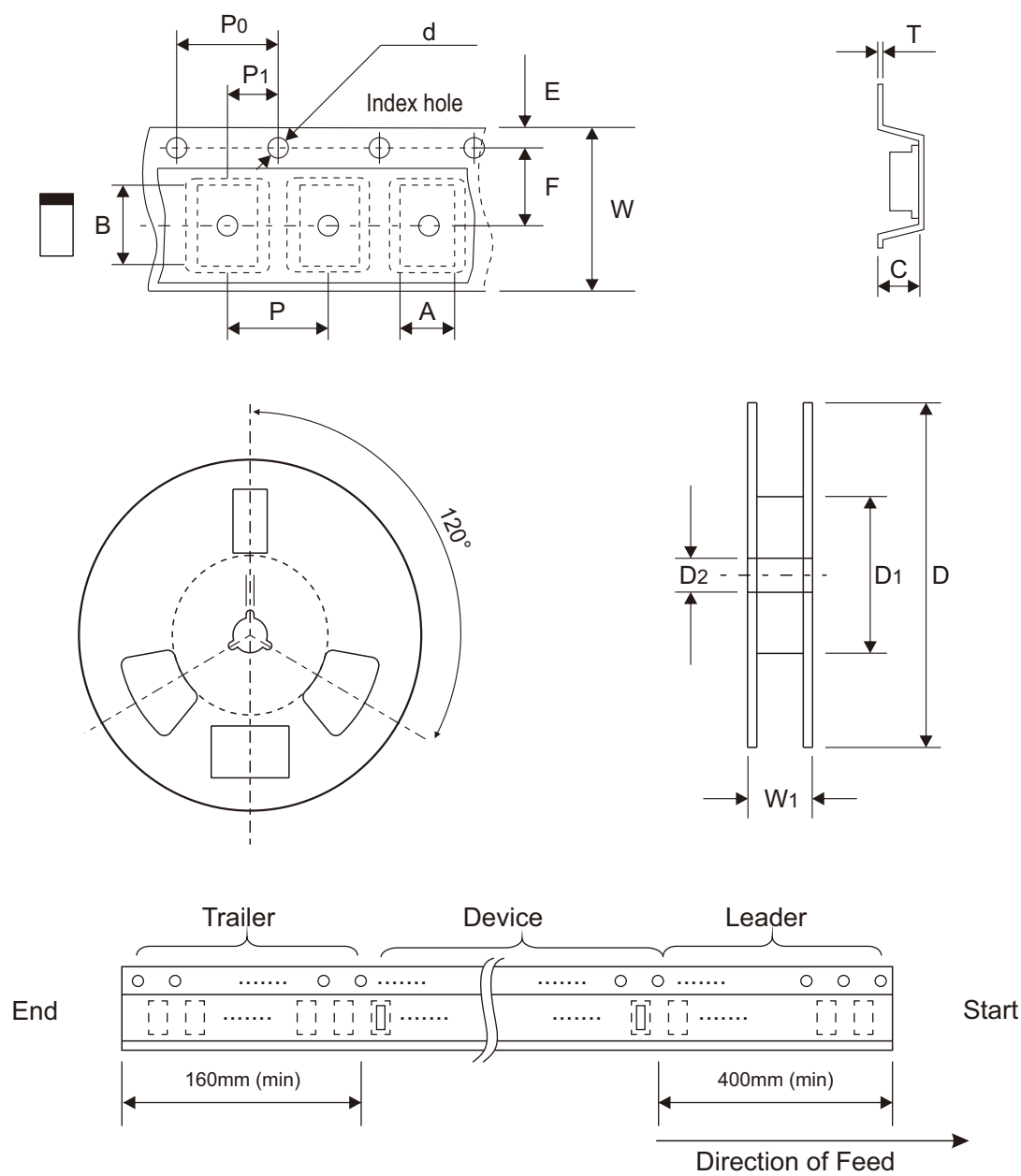


Fig.4 - Typical Capacitance Between  
Terminals Characteristics



Reel Taping Specification



|                     |        |                   |                   |                   |                         |                   |                   |                   |
|---------------------|--------|-------------------|-------------------|-------------------|-------------------------|-------------------|-------------------|-------------------|
| 0603C<br>(SOD-523F) | SYMBOL | A                 | B                 | C                 | d                       | D                 | D1                | D2                |
|                     | (mm)   | $1.05 \pm 0.05$   | $1.96 \pm 0.05$   | $0.57 \pm 0.05$   | $1.50 + 0.10 - 0.00$    | $178.00 \pm 1.00$ | $60.00 \pm 0.50$  | $13.50 \pm 0.20$  |
|                     | (inch) | $0.041 \pm 0.002$ | $0.077 \pm 0.002$ | $0.022 \pm 0.002$ | $0.059 + 0.004 - 0.000$ | $7.008 \pm 0.039$ | $2.362 \pm 0.020$ | $0.531 \pm 0.008$ |

|                     |        |                   |                   |                   |                   |                   |                   |                   |                         |
|---------------------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|
| 0603C<br>(SOD-523F) | SYMBOL | E                 | F                 | P                 | P0                | P1                | T                 | W                 | W1                      |
|                     | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.05$   | $4.00 \pm 0.10$   | $4.00 \pm 0.05$   | $2.00 \pm 0.05$   | $0.20 \pm 0.03$   | $8.00 \pm 0.20$   | $12.00 + 0.50 - 0.00$   |
|                     | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.002$ | $0.157 \pm 0.004$ | $0.157 \pm 0.002$ | $0.079 \pm 0.002$ | $0.008 \pm 0.001$ | $0.315 \pm 0.008$ | $0.472 + 0.020 - 0.000$ |

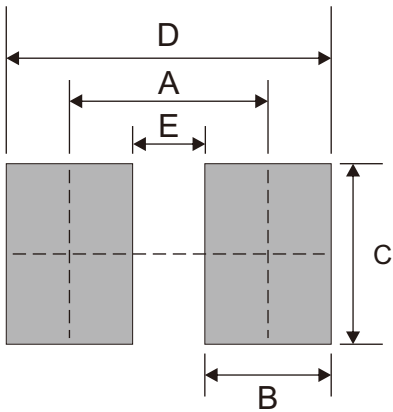
Marking Code

| Part Number    | Marking Code |
|----------------|--------------|
| CPDUC24VCWU-HF | E24W         |



Suggested P.C.B. 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                   |