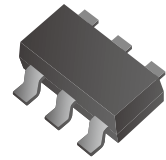


## CPDT6-5V0UPC-HF

**RoHs Device**  
**Halogen Free**

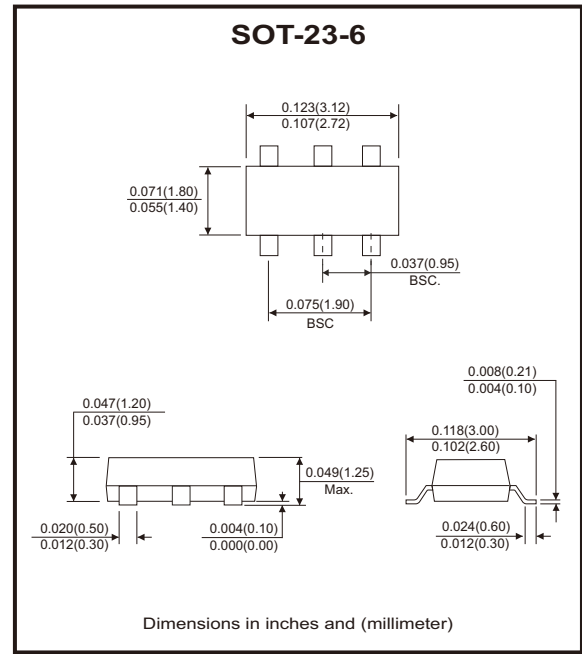


### Features

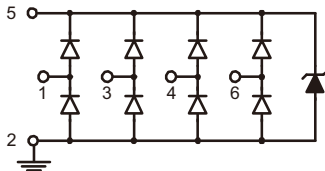
- ESD Protect for 4 high-speed I/O channels.
- IEC61000-4-2(ESD);  $\pm 30\text{KV}$ (contact)
- Working voltage: 5V
- Low capacitance: 2.2pF(Typ.).
- High component density.

### Mechanical data

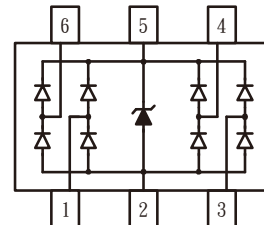
- Case: SOT-23-6 standard package, molded plastic.
- Terminals: Solder plated, solderable per MIL-STD-750, method 2026.
- Mounting position: Any
- Weight: 0.015 grams(approx.).



### Circuit Diagram



### Pin Configuration



### Maximum Ratings (at TA=25°C unless otherwise noted)

| Parameter                                                                      | Symbol         | Value                  | Unit |
|--------------------------------------------------------------------------------|----------------|------------------------|------|
| Peak pulse power ( $t_p = 8/20 \text{ us}$ )                                   | $P_{PK}$       | 125                    | W    |
| Peak pulse current ( $t_p = 8/20 \text{ us}$ )                                 | $I_{PP}$       | 10                     | A    |
| ESD per IEC 61000-4-2(Air)<br>ESD per IEC 61000-4-2(Contact)                   | $V_{ESD\_I/O}$ | $\pm 30$               | kV   |
| ESD per IEC 61000-4-2(Air)(VCC-GND)<br>ESD per IEC 61000-4-2(Contact)(VCC-GND) | $V_{ESD\_VCC}$ | $\pm 30$               | kV   |
| Lead soldering temperature                                                     | $T_{SOL}$      | 260 ( 10 sec)          | °C   |
| Operating temperature range                                                    | $T_J$          | -40 to +125            | °C   |
| Storage temperature range                                                      | $T_{STG}$      | -55 to +150            | °C   |
| I/O voltage tolerance                                                          | $V_{I/O}$      | -0.6 to $V_{CC} + 0.6$ | V    |

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

| Parameter                 | Conditions                                                                       | Symbol    | Min | Typ  | Max  | Unit          |
|---------------------------|----------------------------------------------------------------------------------|-----------|-----|------|------|---------------|
| Reverse stand-Off voltage |                                                                                  | $V_{RWM}$ |     |      | 5    | V             |
| Reverse leakage current   | $V_{RWM} = 5\text{ V}$ , I/O to GND & $V_{CC}$ to GND                            | $I_R$     |     |      | 1    | $\mu\text{A}$ |
| Reverse breakdown voltage | $I_T = 1\text{ mA}$                                                              | $V_{BR}$  | 6   |      | 9    | V             |
| Forward voltage           | $I_F = 10\text{ mA}$                                                             | $V_F$     |     | 0.8  | 1    | V             |
| Clamping voltage          | $I_{PP} = 1\text{ A}$ , $t_p=8/20\mu\text{s}$ ,<br>I/O to GND & $V_{CC}$ to GND  | $V_C$     |     | 8.6  | 9.8  | V             |
|                           | $I_{PP} = 10\text{ A}$ , $t_p=8/20\mu\text{s}$ ,<br>I/O to GND & $V_{CC}$ to GND |           |     | 11.3 | 12.5 |               |
| Junction capacitance      | Any I/O to GND<br>$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                        | $C_j$     |     | 2.2  | 4    | pF            |
|                           | I/O to I/O<br>$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                            |           |     |      | 2    |               |

## RATING AND CHARACTERISTIC CURVES (CPDT6-5V0UPC-HF)

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

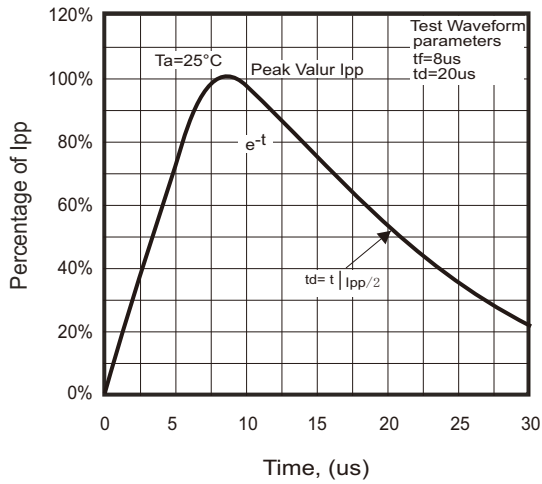


Fig.2 - Power Derating Curve

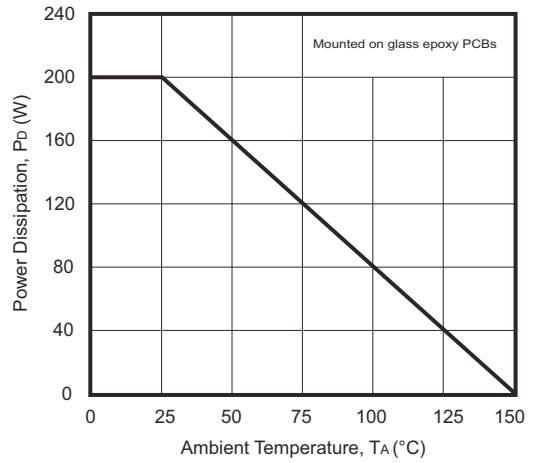


Fig.3 - Forward Characteristic

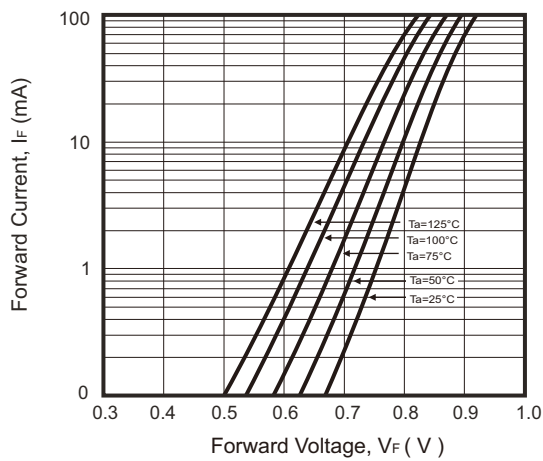


Fig.4 - Clamping Voltage Vs. Peak Pulse Current

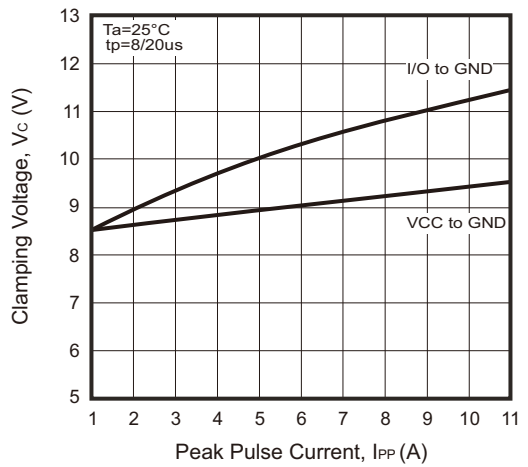
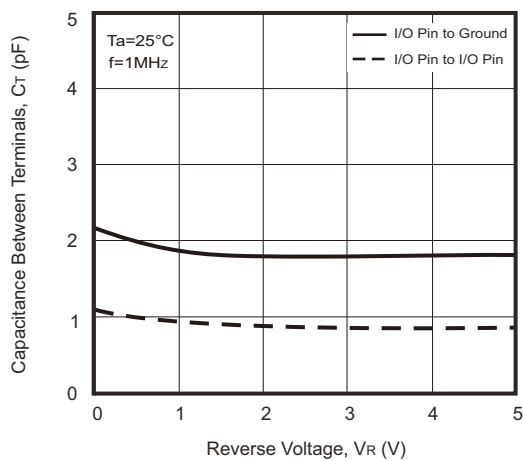
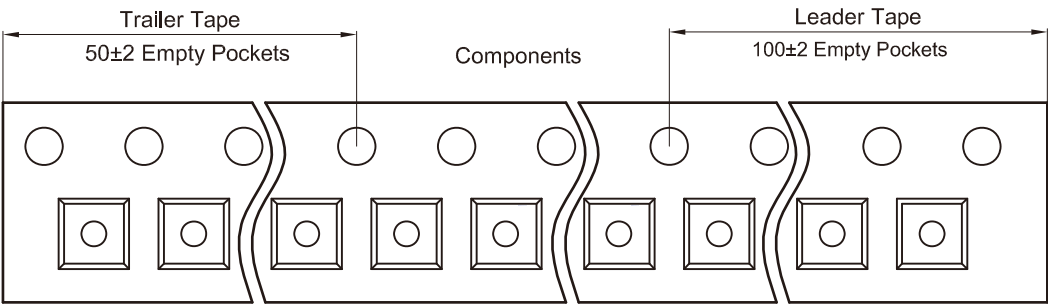
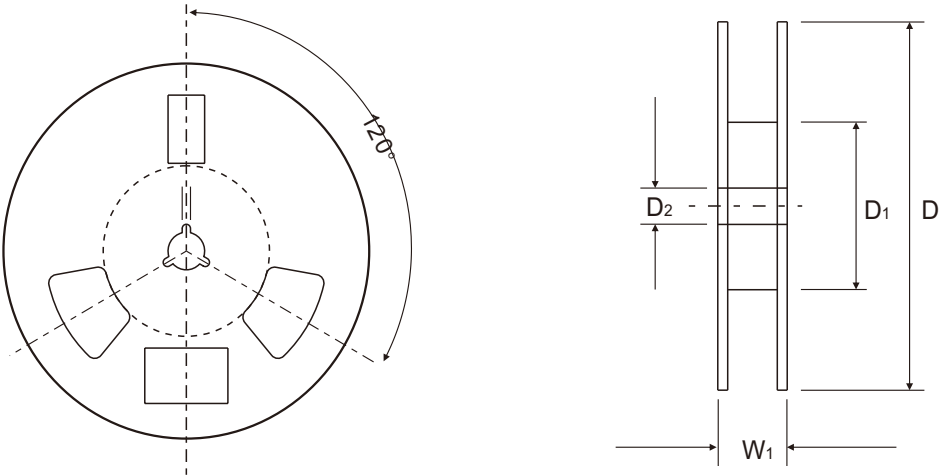
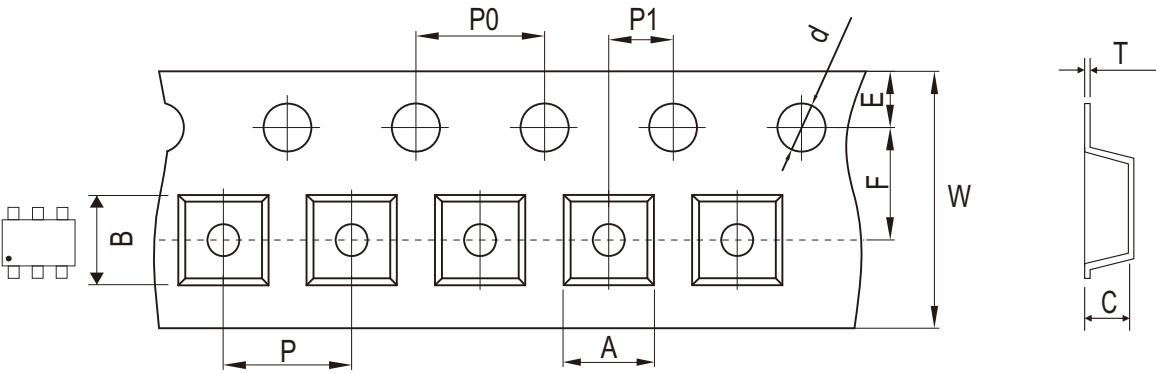


Fig.5 - Capacitance Characteristics



Reel Taping Specification

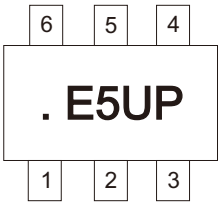


|          | SYMBOL | A             | B             | C             | d                        | D             | D1                       | D2                       |
|----------|--------|---------------|---------------|---------------|--------------------------|---------------|--------------------------|--------------------------|
| SOT-23-6 | (mm)   | 3.26 ± 0.10   | 3.30 ± 0.10   | 1.40 ± 0.10   | 1.55 + 0.10<br>- 0.00    | 180.00 ± 1.00 | 54.40 + 1.00<br>- 0.00   | 13.00 + 0.50<br>- 0.20   |
|          | (inch) | 0.128 ± 0.004 | 0.130 ± 0.004 | 0.055 ± 0.004 | 0.061 + 0.004<br>- 0.000 | 7.087 ± 0.039 | 2.012 + 0.039<br>- 0.000 | 0.512 + 0.020<br>- 0.008 |

|          | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1                       |
|----------|--------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|
| SOT-23-6 | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 8.00 ± 0.10   | 12.00 + 1.00<br>- 0.30   |
|          | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.315 ± 0.004 | 0.472 + 0.039<br>- 0.012 |

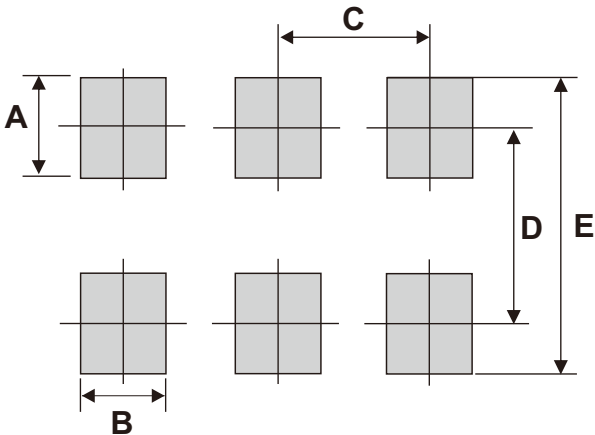
Marking Code

| Part Number     | Marking Code |
|-----------------|--------------|
| CPDT6-5V0UPC-HF | .E5UP        |



Suggested PAD Layout

| SIZE | SOT-23-6 |        |
|------|----------|--------|
|      | (mm)     | (inch) |
| A    | 1.00     | 0.039  |
| B    | 0.70     | 0.028  |
| C    | 0.95     | 0.037  |
| D    | 2.40     | 0.094  |
| E    | 3.40     | 0.134  |



Standard Packaging

| Case Type | REEL PACK       |                     |
|-----------|-----------------|---------------------|
|           | REEL<br>( pcs ) | Reel Size<br>(inch) |
| SOT-23-6  | 3,000           | 7                   |