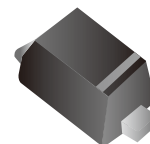


## CPDQ5V0USP-HF

**RoHS Device**  
**Halogen Free**

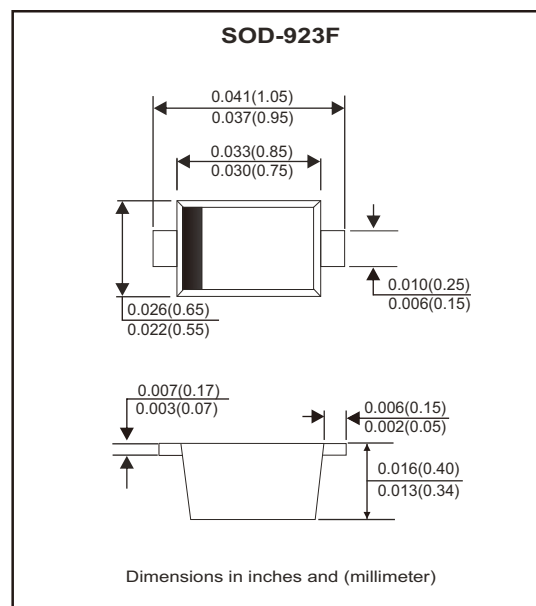


### Features

- IEC 61000-4-2 Level 4 ESD protection.
- ESD Rating of Class 3(>16kV) per Human Body Mode.
- Supper low capacitance 0.5 pF Typ.
- Low clamping voltage.
- Low body height: 0.016"(0.4mm)

### Mechanical data

- Epoxy: Meets UL 94V-0
- Case: SOD-923F small outline plastic package.  
Void-free, Transfer-molded, Thermosetting plastic.
- Terminals: Matte tin plated, solderable per  
MIL-STD-750,method 2026.
- Mounting position: Any.
- High temperature soldering guaranteed: 260°C/10 second.
- Weight: 0.001 grams(approx.).



### Circuit Diagram

- Pin 1: Cathode
- Pin 2: Anode



### Maximum Rating (at T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                  | Conditions               | Symbol           | Value       | Unit |
|----------------------------|--------------------------|------------------|-------------|------|
| Typ. peak pulse power      | T <sub>P</sub> = 8/20 μs | PPP              | 9.8         | W    |
| Peak pulse current         | T <sub>P</sub> = 8/20 μs | I <sub>PP</sub>  | 1           | A    |
| ESD capability             | IEC 61000-4-2(Air)       | ESD              | ±15         | kV   |
|                            | IEC 61000-4-2(Contact)   | ESD              | ±10         | kV   |
| Junction temperature range |                          | T <sub>J</sub>   | -55 to +125 | °C   |
| Storage temperature range  |                          | T <sub>STG</sub> | -55 to +150 | °C   |

## Electrical Characteristics

(at  $T_A=25^{\circ}\text{C}$  unless otherwise noted.  $V_F=1.0\text{V}$  Max. @  $I_F=10\text{mA}$  for all types)

| Parameter                    | Conditions                                     | Symbol    | Min | Typ | Max | Unit          |
|------------------------------|------------------------------------------------|-----------|-----|-----|-----|---------------|
| Working peak reverse voltage |                                                | $V_{RWM}$ |     |     | 5.0 | V             |
| Forward voltage              | $I_F = 10\text{mA}$                            | $V_F$     |     |     | 0.9 | V             |
| Breakdown voltage            | $I_T = 1\text{mA}$                             | $V_{BR}$  | 5.4 |     |     | V             |
| Reverse leakage current      | $V_{RWM} = 5\text{V}$                          | $I_R$     |     |     | 1.0 | $\mu\text{A}$ |
| Clamping voltage             | $I_{PP} = 1\text{A}$ , $T_P = 8/20\mu\text{s}$ | $V_C$     |     |     | 9.8 | V             |
| Junction capacitance         | $V_R = 0\text{V}$ , $f = 1\text{MHz}$          | $C_J$     |     | 0.5 | 0.9 | pF            |

### NOTES:

- FR-5= 1.0\*0.75\*0.62 in.
- Surge current waveform per Figure 1.
- $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^{\circ}\text{C}$ .

## Rating and Characteristic Curves (CPDQ5V0USP-HF )

Fig.1 - Pulse Waveform

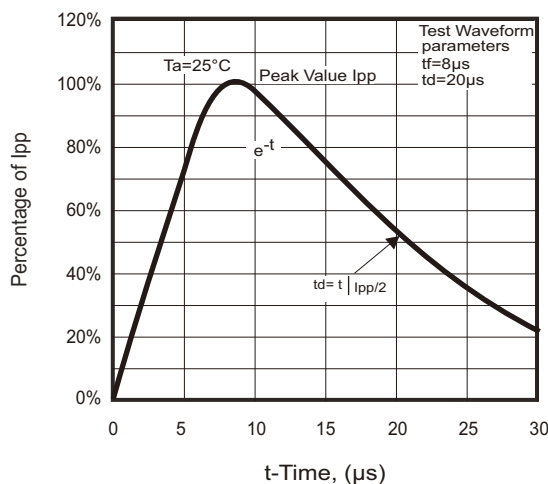
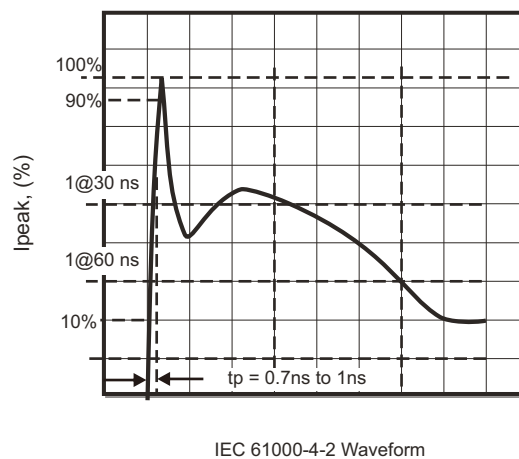
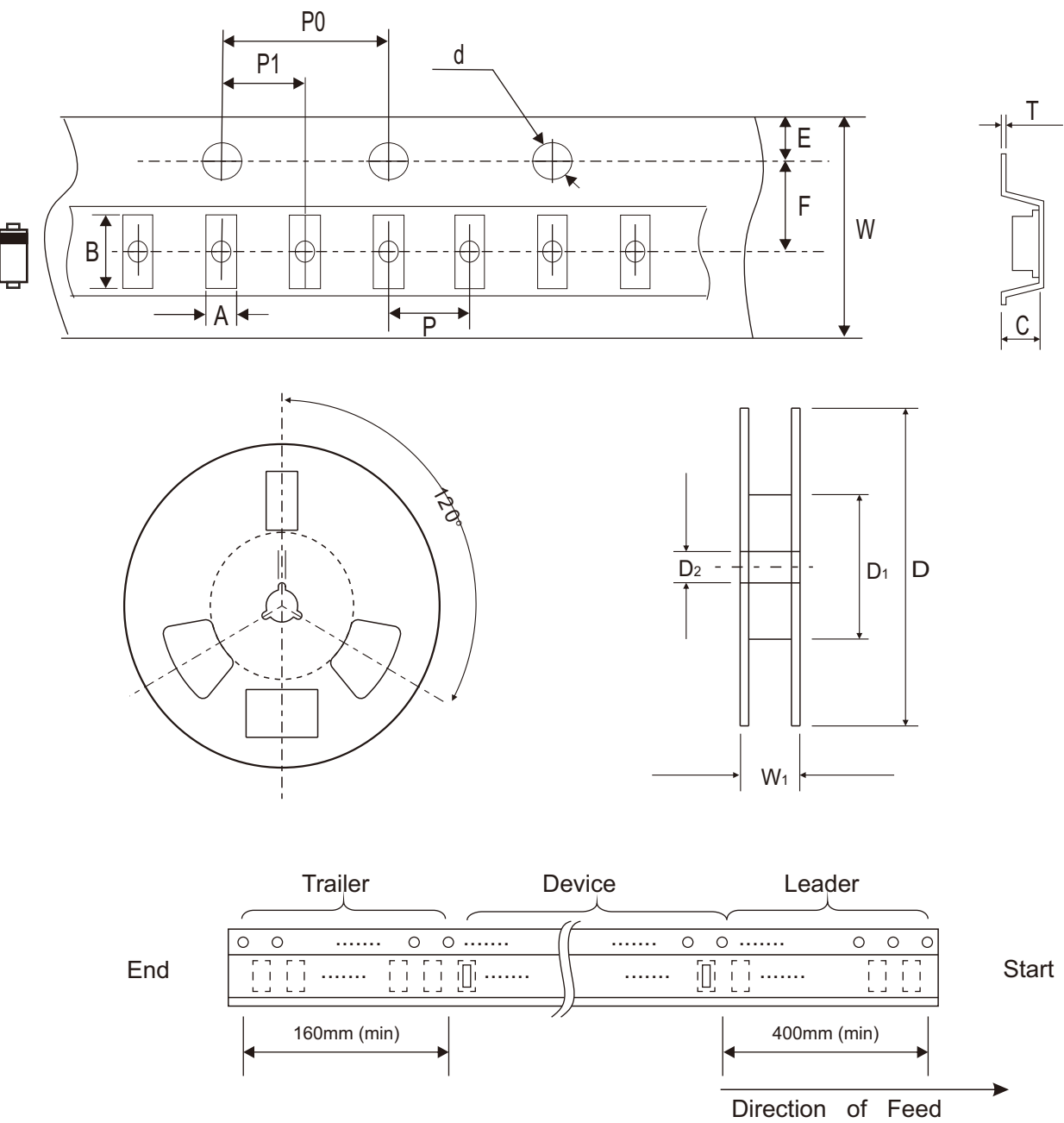


Fig.2- IEC 61000-4-2 Waveform



Reel Taping Specification



|          | SYMBOL | A             | B             | C             | d                    | D           | D <sub>1</sub> | D <sub>2</sub> |
|----------|--------|---------------|---------------|---------------|----------------------|-------------|----------------|----------------|
| SOD-923F | (mm)   | 0.70 ± 0.05   | 1.12 ± 0.05   | 0.48 ± 0.05   | 1.50 + 0.10<br>- 0   | 178.00 Max. | 50.00 Min.     | 13.00 ± 0.50   |
|          | (inch) | 0.028 ± 0.002 | 0.044 ± 0.002 | 0.019 ± 0.002 | 0.059 + 0.004<br>- 0 | 7.008 Max.  | 1.969 Min.     | 0.512 ± 0.020  |

|          | SYMBOL | E             | F             | P             | P <sub>0</sub> | P <sub>1</sub> | T             | W          | W          |
|----------|--------|---------------|---------------|---------------|----------------|----------------|---------------|------------|------------|
| SOD-923F | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 2.00 ± 0.05   | 4.00 ± 0.10    | 2.00 ± 0.05    | 0.229 ± 0.02  | 8.30 Max.  | 10.90 Max. |
|          | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.079 ± 0.002 | 0.157 ± 0.004  | 0.079 ± 0.002  | 0.009 + 0.001 | 0.327 Max. | 0.429 Max. |

Marking Code

| Part Number   | Marking Code |     |
|---------------|--------------|-----|
| CPDQ5V0USP-HF | D            | D ⌘ |



Month Code:

| Month | Odd Year<br>(per A.D.) | Even Year<br>(per A.D.) |
|-------|------------------------|-------------------------|
| Jan   | 1                      | E                       |
| Feb   | 2                      | F                       |
| Mar   | 3                      | H                       |
| Apr   | 4                      | J                       |
| May   | 5                      | K                       |
| Jun   | 6                      | L                       |
| Jul   | 7                      | N                       |
| Aug   | 8                      | P                       |
| Sep   | 9                      | U                       |
| Oct   | T                      | X                       |
| Nov   | V                      | Y                       |
| Dec   | C                      | Z                       |

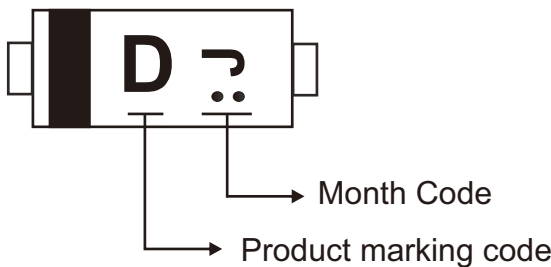


D: Product marking code

⌘: Month Code

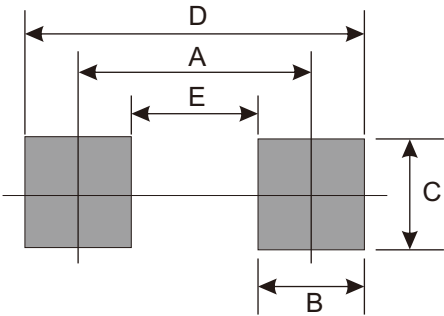
For example as follows:

- Product marking code: D
- Manufacture date\_ Year: 2012 (Even year) / Month: Apr  
Month code: J ( Month code rotated 90° and two dots below the month code.)



Suggested PAD Layout

| SIZE | SOD-923F |        |
|------|----------|--------|
|      | (mm)     | (inch) |
| A    | 0.90     | 0.035  |
| B    | 0.30     | 0.012  |
| C    | 0.40     | 0.016  |
| D    | 1.20     | 0.047  |
| E    | 0.60     | 0.024  |



Standard Packaging

| Case Type | REEL PACK       |                     |
|-----------|-----------------|---------------------|
|           | REEL<br>( pcs ) | Reel Size<br>(inch) |
| SOD-923F  | 8,000           | 7                   |