

# CPDQ24VM-HF

RoHS Device

Halogen Free



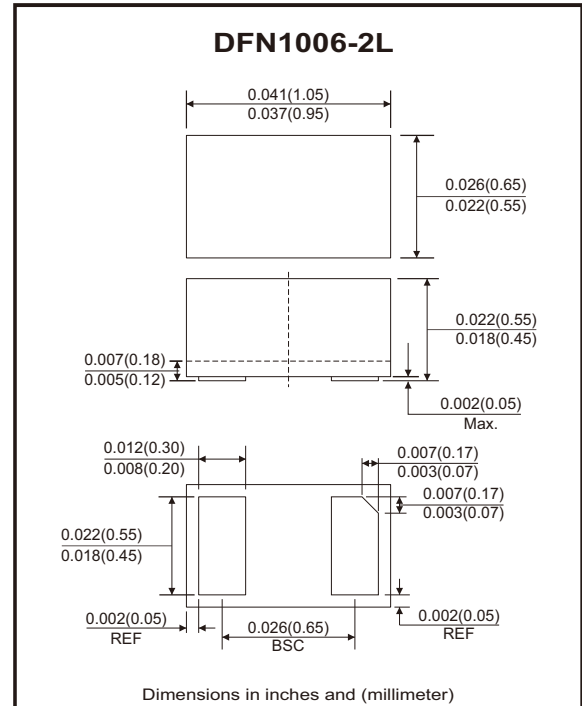
## Features

- ESD protection for one line with Bi-directional.
- Protect one I/O line or power line.
- Fast turn-on and low clamping voltage.
- IEC 61000-4-2 (ESD)  $\pm 30$  kV (air/contact)
- IEC 61000-4-4 (EFT) 80A (5/50ns)
- IEC 61000-4-5 (Lightning) 7A (8/20 $\mu$ s)

## Mechanical data

- Case: DFN1006-2L package, molded plastic.
- Mounting position: Any.

## Circuit Diagram



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

| Parameter                            | Conditions                                   | Symbol    | Value       | Unit |
|--------------------------------------|----------------------------------------------|-----------|-------------|------|
| Peak pulse power                     | $T_P = 8/20\mu s$                            | $P_{PP}$  | 294         | W    |
| Peak pulse current                   | $T_P = 8/20\mu s$                            | $I_{PP}$  | 7           | 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 +125 | °C   |
| Storage temperature range            |                                              | $T_{STG}$ | -55 to +150 | °C   |

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

| Parameter                    | Conditions                     | Symbol    | Min  | Typ  | Max | Unit |
|------------------------------|--------------------------------|-----------|------|------|-----|------|
| Working peak reverse voltage |                                | $V_{RWM}$ |      |      | 24  | V    |
| Reverse leakage current      | $V_{RWM} = 24V$                | $I_R$     |      |      | 200 | nA   |
| Breakdown voltage            | $I_T = 1mA$                    | $V_{BR}$  | 25.5 |      | 31  | V    |
| Clamping voltage             | $I_{PP} = 5A, T_P = 8/20\mu s$ | $V_C$     |      | 34   |     | V    |
|                              | $I_{PP} = 7A, T_P = 8/20\mu s$ | $V_C$     |      | 39   | 42  |      |
| Clamping voltage             | $TLP = 16A, T_P = 100ns$       | $V_C$     |      | 32.5 |     | V    |
| Junction capacitance         | $V_R = 0V, f = 1MHz$           | $C_J$     |      | 27   |     | pF   |

Typical Rating and Characteristic Curves (CPDQ24VM-HF)

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

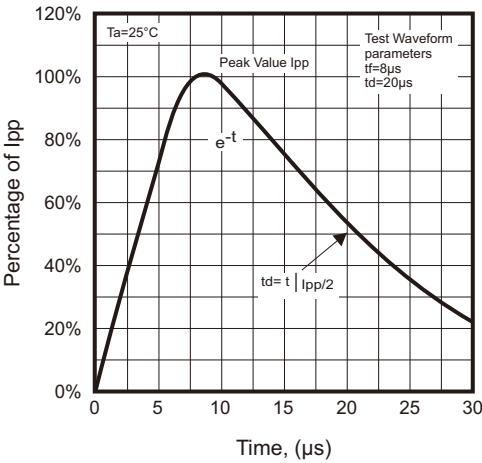


Fig.2 - Power Rating Derating Curve

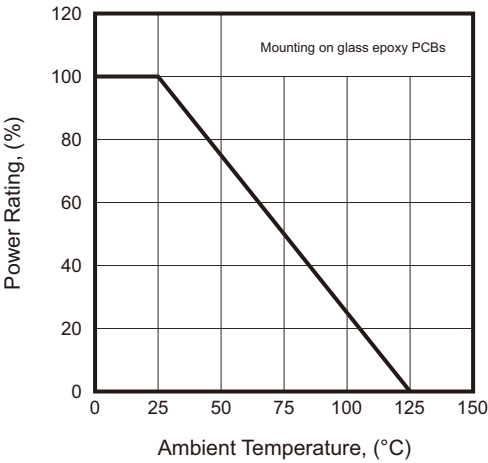


Fig.3 - Typical Clamping Voltage vs. Peak Pulse Current

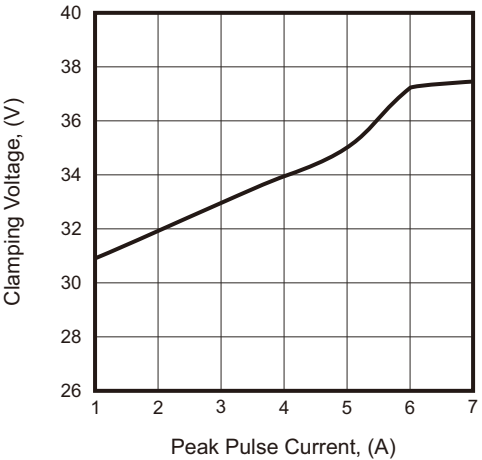


Fig.4 - Typical Capacitance Between Terminals Characteristics

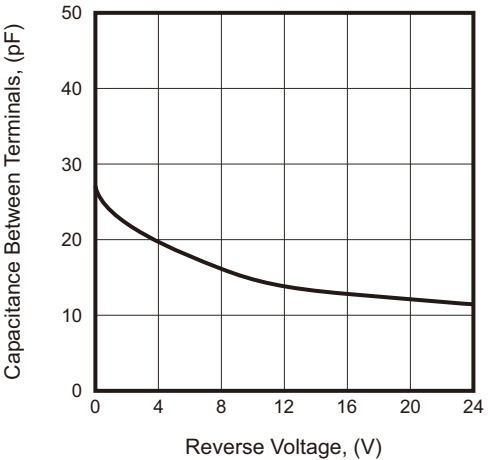


Fig.5 - TLP- Positive Pulse

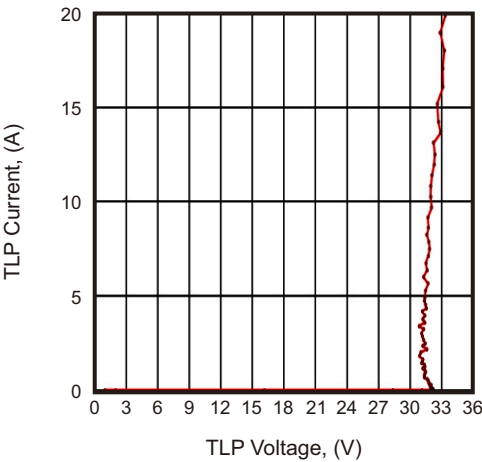
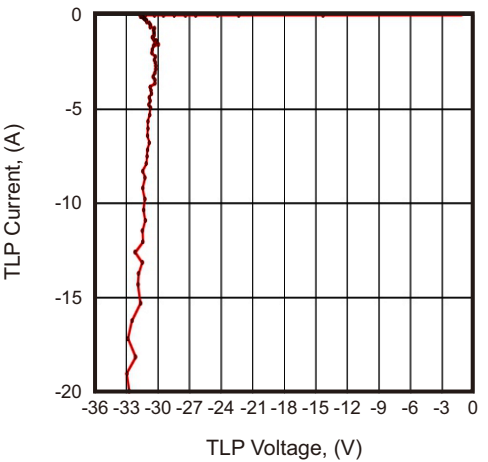
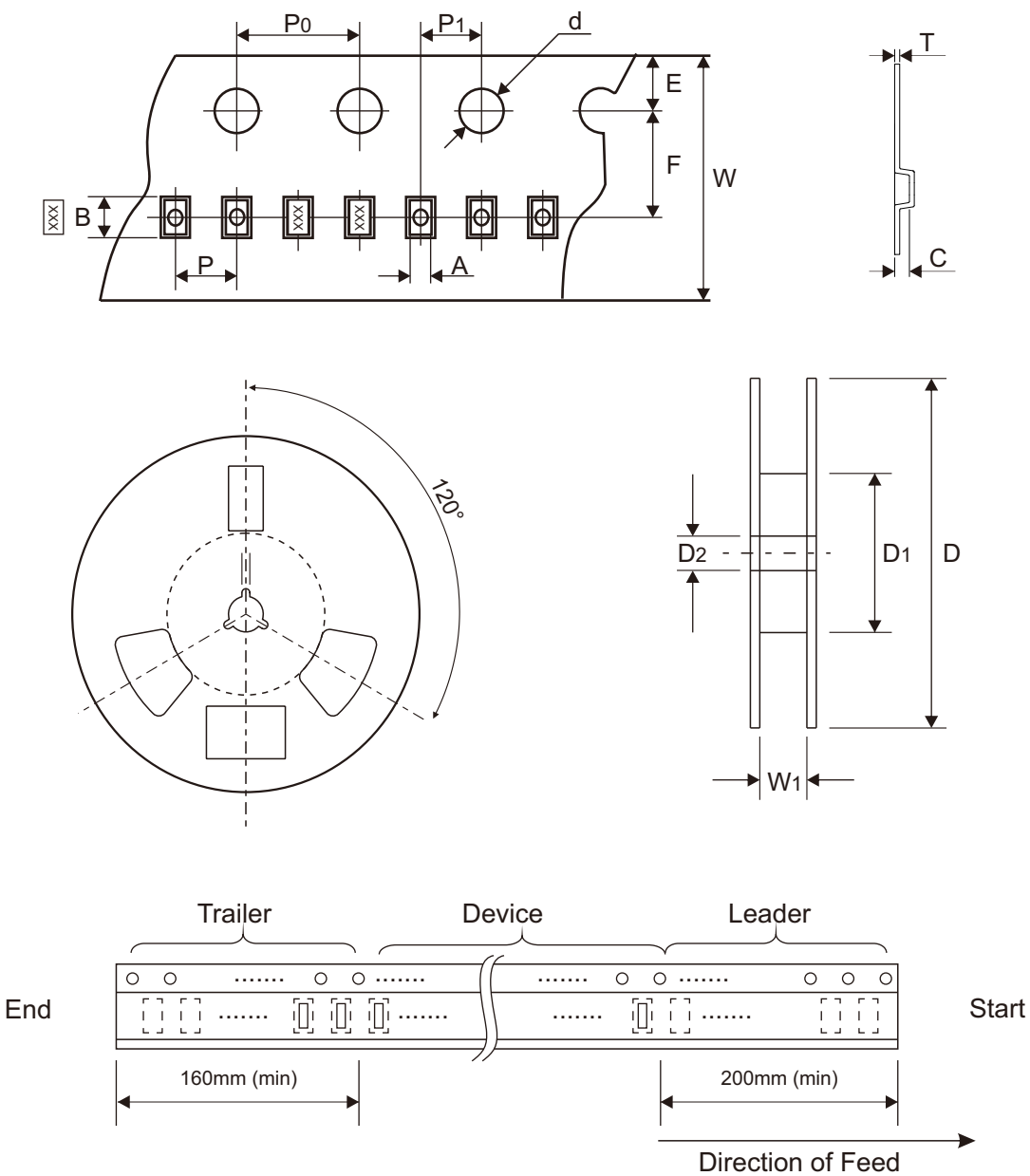


Fig.6 - TLP- Negative Pulse



Reel Taping Specification



| DFN1006-2L | SYMBOL | A                        | B                        | C                        | d             | D          | D1            | D2                       |
|------------|--------|--------------------------|--------------------------|--------------------------|---------------|------------|---------------|--------------------------|
|            | (mm)   | 0.68 + 0.07<br>- 0.04    | 1.19 + 0.05<br>- 0.12    | 0.48 + 0.10<br>- 0.05    | 1.55 ± 0.05   | 181.00 Max | 55.00 ± 5.00  | 13.00 + 0.50<br>- 0.20   |
|            | (inch) | 0.027 + 0.003<br>- 0.002 | 0.047 + 0.002<br>- 0.005 | 0.019 + 0.004<br>- 0.002 | 0.061 ± 0.002 | 7.126 Max  | 2.165 ± 0.197 | 0.512 + 0.020<br>- 0.008 |

| DFN1006-2L | SYMBOL | E             | F             | P             | P0            | P1            | T             | W                        | W1        |
|------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|-----------|
|            | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.05   | 2.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 0.21 ± 0.04   | 8.00 + 0.30<br>- 0.10    | 11.60 Max |
|            | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.079 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.008 ± 0.002 | 0.315 + 0.012<br>- 0.004 | 0.457 Max |

Marking Code

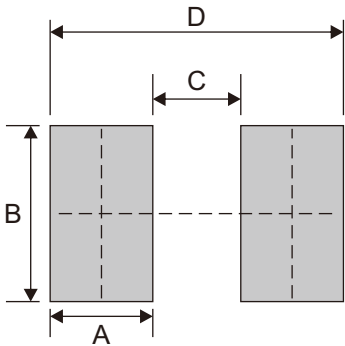
| Part Number | Marking Code |
|-------------|--------------|
| CPDQ24VM-HF | BW           |



X = Control code

Suggested P.C.B. PAD Layout

| SIZE | DFN1006-2L |        |
|------|------------|--------|
|      | (mm)       | (inch) |
| A    | 0.35       | 0.014  |
| B    | 0.60       | 0.024  |
| C    | 0.30       | 0.012  |
| D    | 1.00       | 0.039  |



Standard Packaging

| Case Type  | REEL PACK       |                     |
|------------|-----------------|---------------------|
|            | REEL<br>( pcs ) | Reel Size<br>(inch) |
| DFN1006-2L | 10,000          | 7                   |