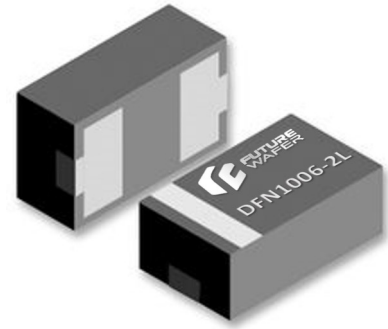


## Extremely Low Capacitance TVS Diode

### Applications

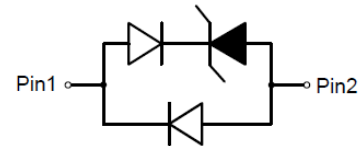
- Personal Digital Assistance
- Wireless System
- HDMI 1.4
- High Speed Data Line
- Ethernet
- USB 3.1 Power and Data line Protection
- Display Port 1.2
- e SATA 3.0



DFN1006-2L

### Feature

- With TVS Diode
- ESD Protection: Level 4
- Low Clamping Voltage @  $I_{PP}=4A, V_C < 15V$
- 60 Watts peak pulse power per line ( $t_p=8/20\mu s$ )
- Ultra low capacitance: 0.5pf max. (Pin 1-Pin 2)



### IEC Compatibility

- EN61000-4
- 61000-4-2(ESD): Level 4, Contact:  $> \pm 20kV$ , Air:  $> \pm 25kV$
- 61000-4-4(EFT): 40A-5/50ns
- 61000-4-5(Surge): 4A, 8/20us

### Mechanical Characteristics

- Molded JEDEC DFN1006-2L package
- Packaging: Tape and Reel
- Flammability rating UL 94V-0
- Halogen Free

## Device Characteristics

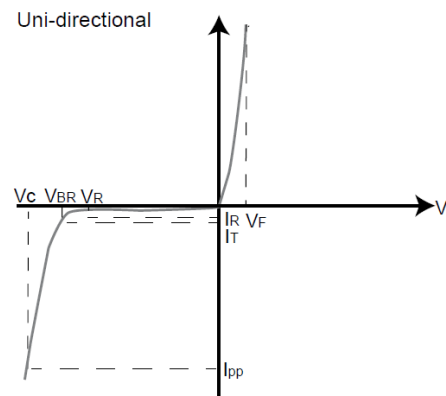
| Maximum Ratings@25 unless otherwise specified |           |         |             |
|-----------------------------------------------|-----------|---------|-------------|
| Parameter                                     | Symbol    | Value   | Units       |
| Peak pulse power ( $t_p=8/20\mu s$ )          | PPP       | 60      | Watts       |
| Operating Temperature                         | $T_J$     | -55~150 | $^{\circ}C$ |
| Storage Temperature                           | $T_{STG}$ | -55~150 | $^{\circ}C$ |

## Electrical Characteristics

| Parameter                 | Symbol       | Condition                                                    | Min. | Typ. | Max.     | Units |
|---------------------------|--------------|--------------------------------------------------------------|------|------|----------|-------|
| Reverse Stand-off Voltage | $V_{RWM}$    |                                                              |      |      | 5        | V     |
| Reverse Breakdown Voltage | $V_{BR}$     | $I_Z=1mA$ , Pin 1 to 2                                       | 6.1  |      | 8.5      | V     |
| Reverse Leakage Current   | $I_R@V_R=5V$ | Pin 1 to Pin 2                                               |      |      | 50       | nA    |
| Clamping Voltage          | $V_C$        | $I_{PP}=1A$ $t_p=8/20\mu s$<br>$I_{PP}=4A$ , $t_p=8/20\mu s$ |      |      | 10<br>15 | V     |
| Junction Capacitance      | $C$ I/O-GND  | $V_{dc}=0V$ , $f=1MHz$                                       |      | 0.45 | 0.5      | pf    |

## Electrical Characteristics $T=(25^{\circ}C)$

| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_{RWM}$ | Nominal Reverse Working Voltage     |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Reverse Breakdown Voltage @ $I_T$   |
| $I_T$     | Test Current for Reverse Breakdown  |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_{PP}$  | Maximum Peak Pulse Current          |
| $C_{ESD}$ | Parasitic Capacitance               |
| $V_R$     | Reverse Voltage                     |
| $f$       | Small Signal Frequency              |



## Rating and characteristic curve

FIGURE 1  
Non-repetitive Peak pulse power V.S pulse time

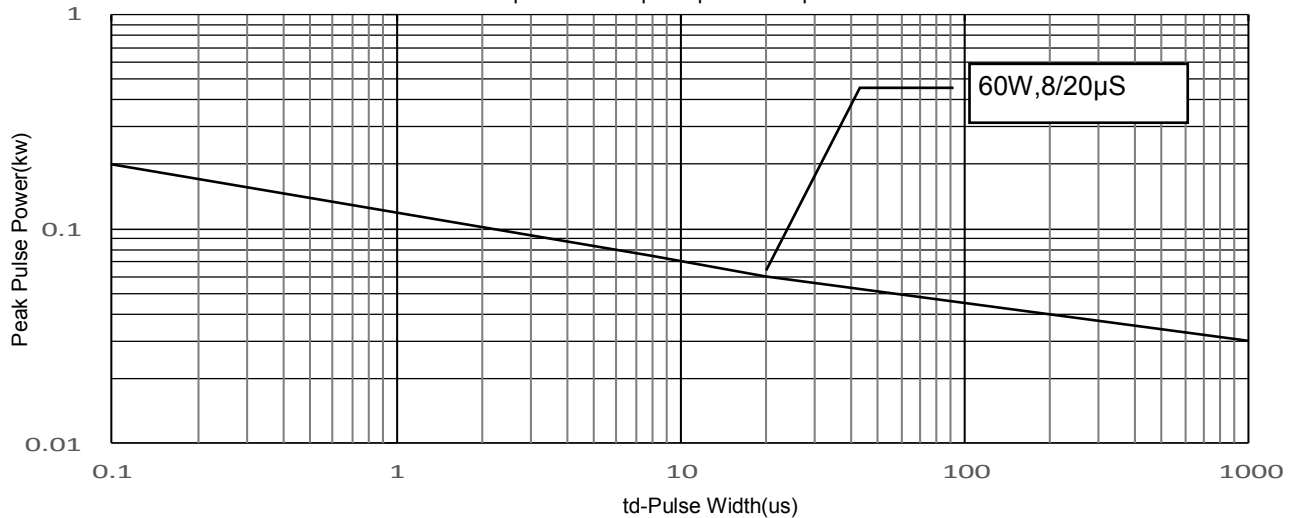


FIGURE 2  
Breakdown Voltage VB Map Pin to Pin.

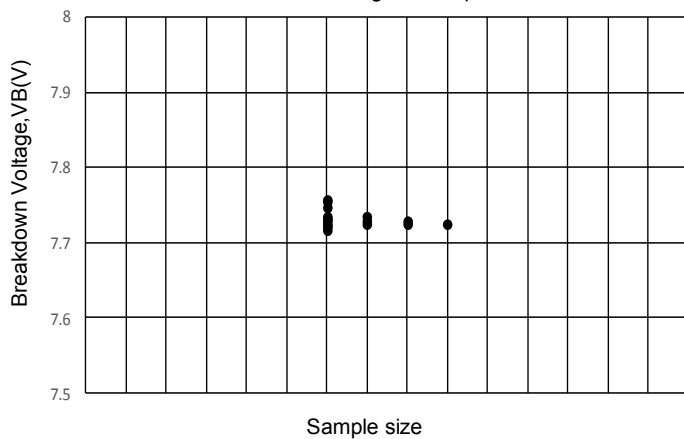


FIGURE 3  
Power Derating Curve

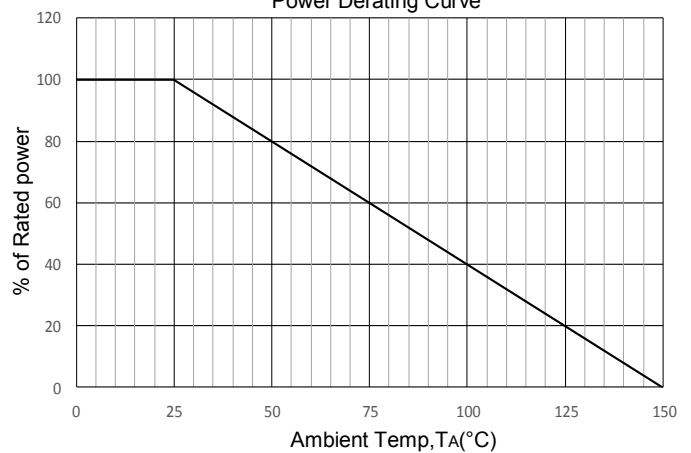


FIGURE 4  
Normalized Capacitance vs.Reverse Voltage

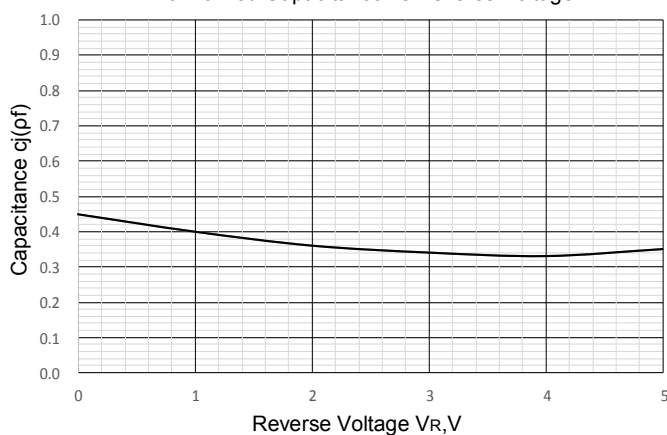
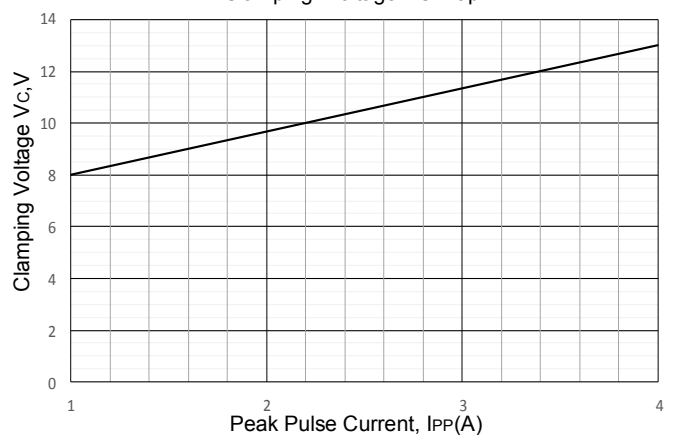


FIGURE 5  
Clamping Voltage VC Map



## Rating and characteristic curve

FIGURE 6  
TLP I-V Curve

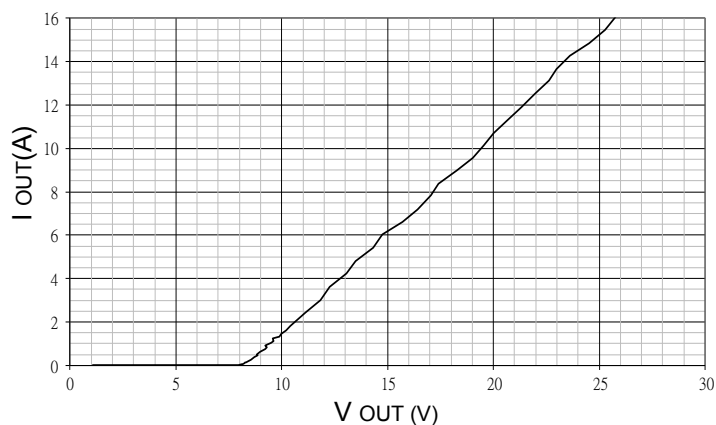
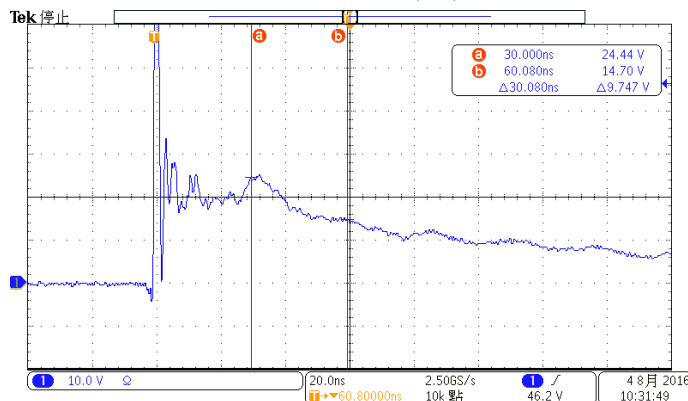
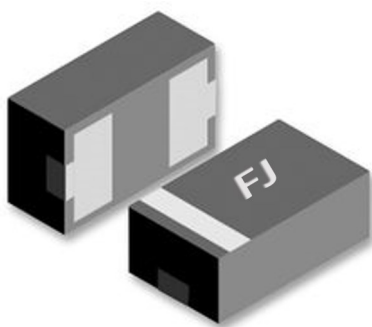


FIGURE 7  
ESD Test contact(8kv)



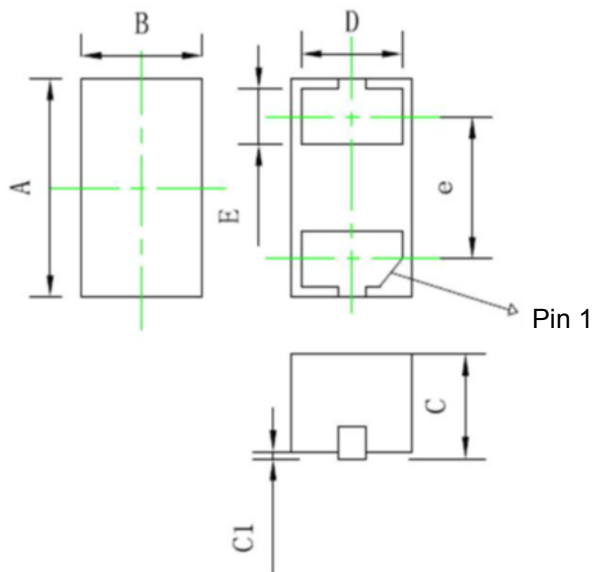
## Ordering information

### Marking codes



| Part No.   | Marking           |
|------------|-------------------|
| FESD05LCDS | FJ                |
| Quantity   | 10,000pcs/7" Reel |

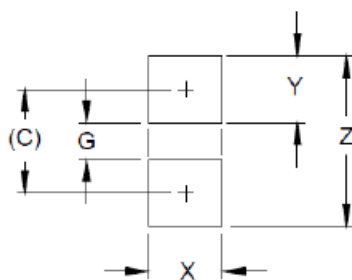
## Package information



| SYMBOL | MILLIMETER |      |      |
|--------|------------|------|------|
|        | MIN        | NOM  | MAX  |
| A      | 0.95       | 1.00 | 1.05 |
| B      | 0.55       | 0.60 | 0.65 |
| C      | 0.40       | 0.45 | 0.50 |
| C1     |            |      | 0.05 |
| D      | 0.45       | 0.50 | 0.55 |
| e      | 0.65 BSC   |      |      |
| E      | 0.20       | 0.25 | 0.30 |

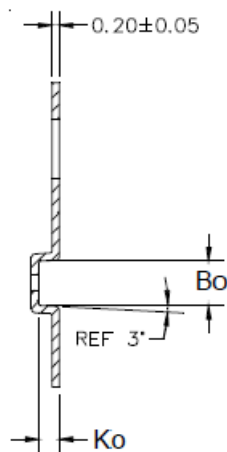
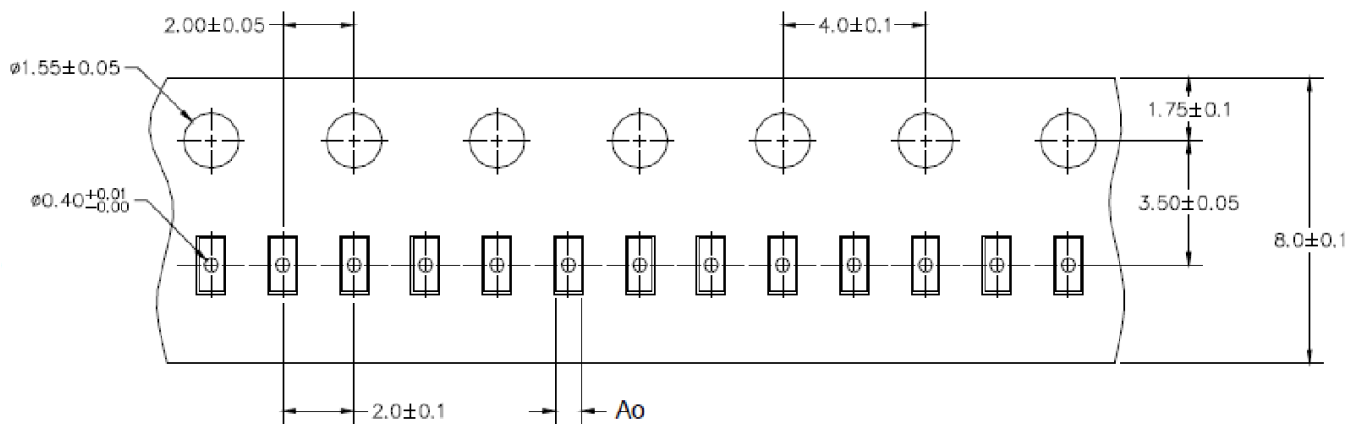
Unit:mm

## Pad Layout



| DIMENSIONS |        |             |
|------------|--------|-------------|
| DIM        | INCHES | MILLIMETERS |
| C          | (.033) | (0.85)      |
| G          | .012   | 0.30        |
| X          | .024   | 0.60        |
| Y          | .022   | 0.55        |
| Z          | .055   | 1.40        |

## Tape & Reel information



| A0              | B0              | K0              |
|-----------------|-----------------|-----------------|
| 0.69 +/-0.10 mm | 1.19 +/-0.10 mm | 0.66 +/-0.10 mm |



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