

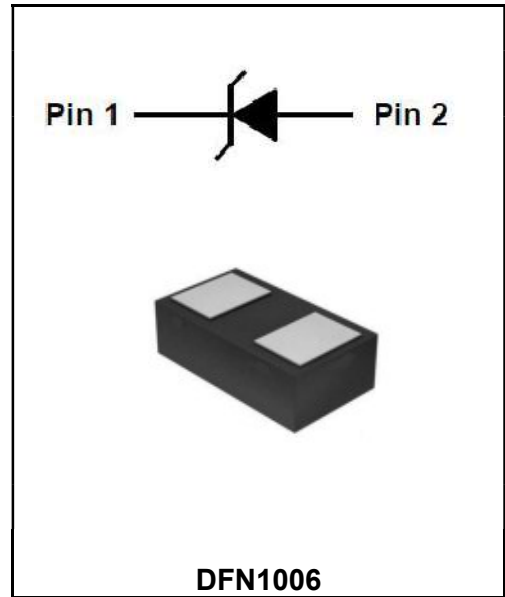
**Uni-directional ESD Protection Diode**

**Features**

- ◆Capacitance:60pF(typ.)
- ◆Reverse Working Voltage: 24 V
- ◆IEC 61000-4-2(ESD Air): ± 30KV
- ◆IEC 61000-4-2(ESD Contact): ± 30kV
- ◆IEC61000-4-5(Lightning 8/20us): 9 A

**Application**

- ◆USB Type-C CC and SBU protection
- ◆USB VBUS protection
- ◆Power supply protection
- ◆Hand-held portable applications
- ◆Low speed data or control line protection
- ◆Consumer electronics
- ◆Peripherals



**Order Information**

Part Number	Package	Marking	Size (mm)	Delivery Form	Delivery Quantity
ESD1006D24	DFN1006	24	1.00x0.60x0.40	7" T&R	10000PCS/Tape

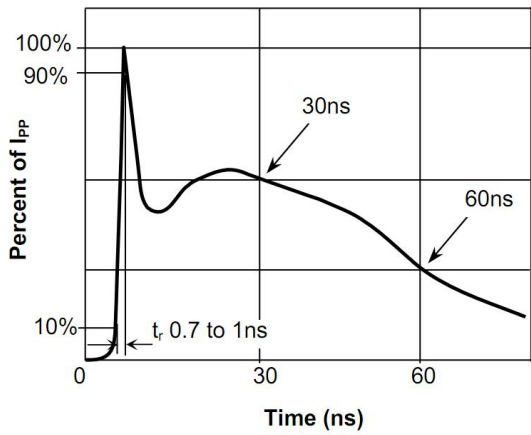
**Limiting Values(TA = 25 °C, unless otherwise specified)**

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>ESD</sub>	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	±30	kV
		IEC 61000-4-2; Air Discharge	-	±30	kV
P <sub>PP</sub>	Peak Pulse Power	tP = 8/20 μs	-	380	W
I <sub>PPM</sub>	Rated Peak Pulse Current	tP = 8/20 μs	-	9	A
T <sub>A</sub>	Operating Temperature Range	-	-55	125	°C
T <sub>stg</sub>	Storage Temperature Range	-	-55	150	°C

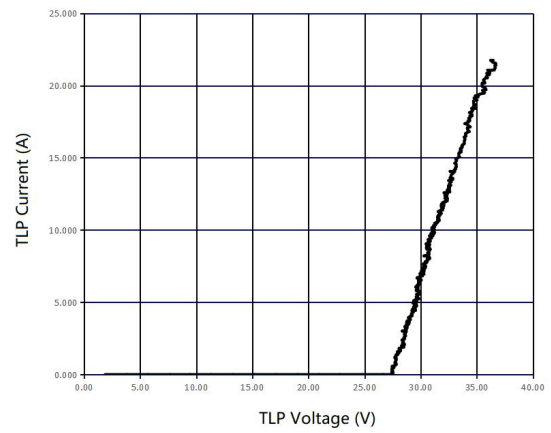
**Electrical Characteristics(TA = 25 °C unless otherwise specified)**

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V <sub>RWM</sub>	Reverse Working Voltage	TA = 25 °C	-	-	24	V
V <sub>BR</sub>	Breakdown Voltage	IR = 1mA; TA = 25 °C	25.5	-	31.5	V
I <sub>R</sub>	Reverse Leakage Current	VRWM = 24 V; TA = 25 °C	-	-	0.1	uA
V <sub>C</sub>	Clamping Voltage	IPP=5 A, tP =8/20μs	-	-	33	V
		IPP=9 A, tP =8/20μs	-	-	38	V
C <sub>J</sub>	Junction Capacitance	VR = 0V, f = 1 MHz	-	52	60	pF

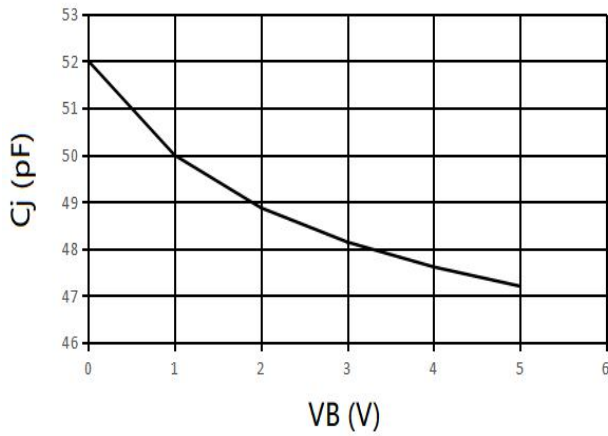
Typical Characteristics



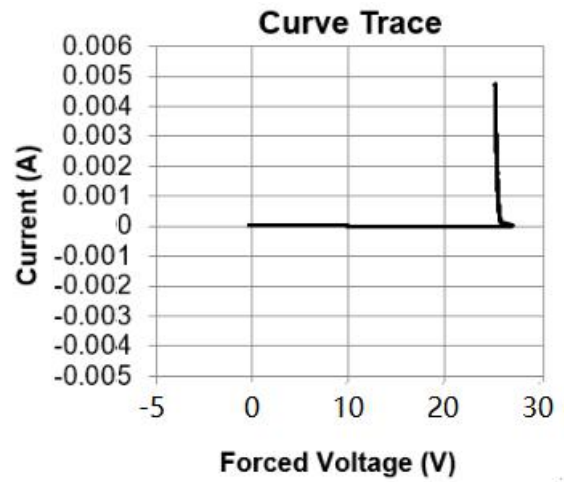
**Fig.1 Pulse Waveform-ESD (IEC61000-4-2)**



**Fig.2 Transmission Line Pulse (TLP)**

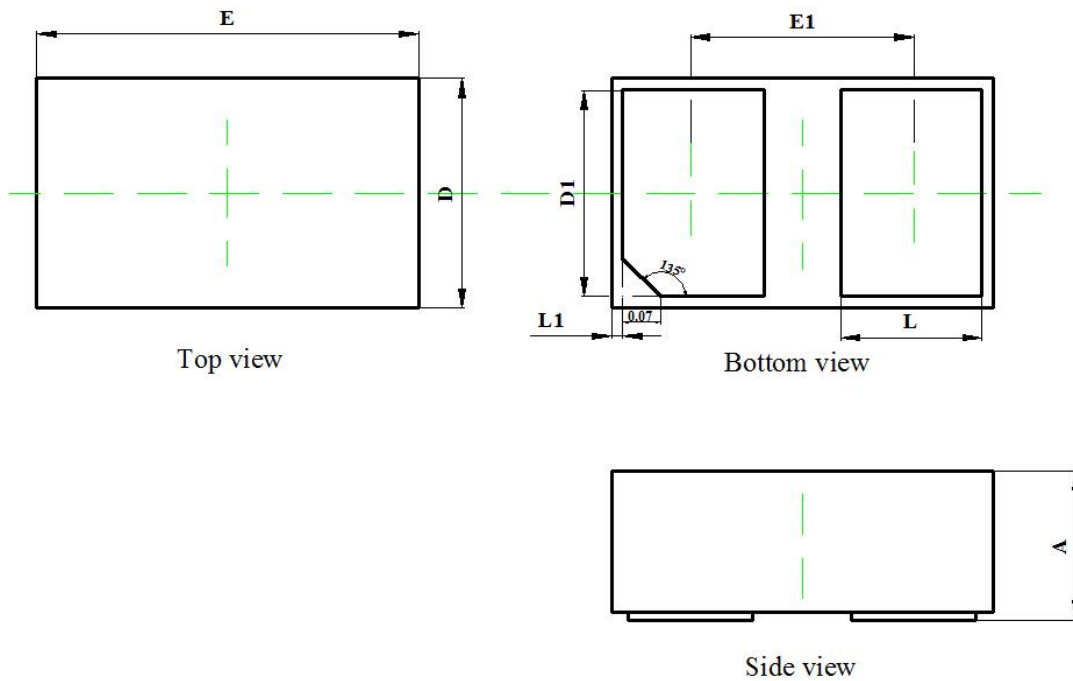


**Fig.3 Capacitance vs. Reverses Voltage**

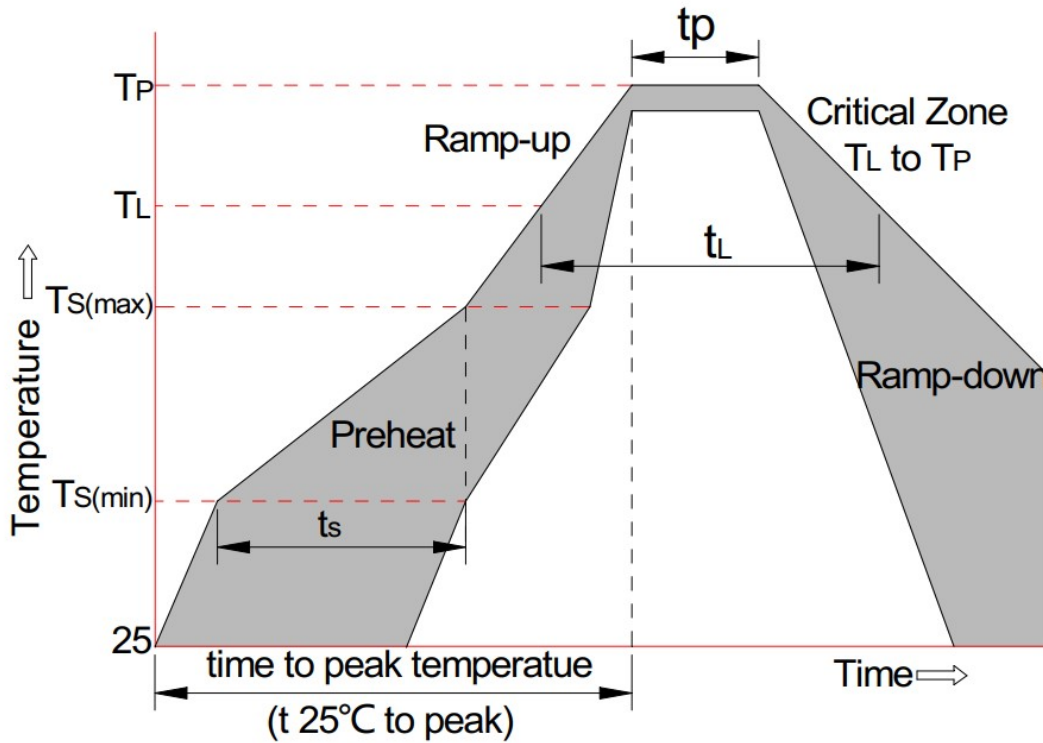


**Fig.4 IV Curve ( Forward Voltage )**

DFN1006 Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
E	0.950	1.050	0.037	0.041
D1	0.420	0.520	0.017	0.020
E1	0.550	0.650	0.022	0.026
L	0.270	0.370	0.011	0.015
L1	0.000	0.100	0.000	0.004



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min ( $T_{S(min)}$ )	+150°C
	-Temperature Max( $T_{S(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C