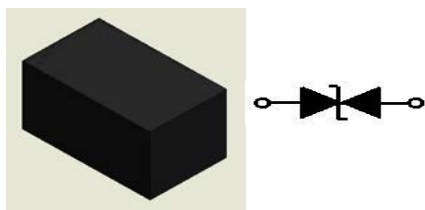


**ESDQR5V0BJ****5V Bi-directional ESD****Features**

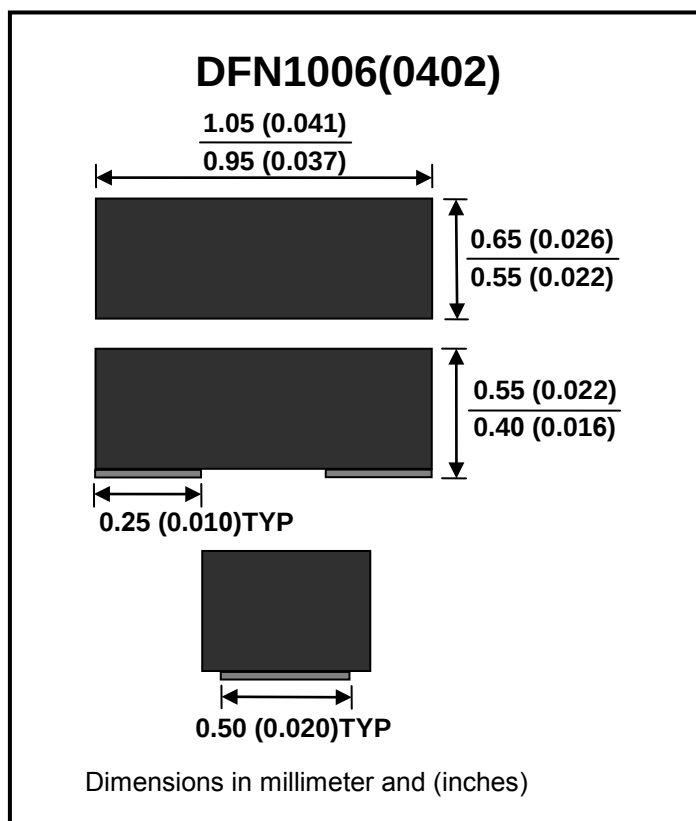
- ☐ Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 15\text{kV}$ (Air)
 $\pm 8\text{kV}$ (Contact)
IEC 61000-4-4 (EFT) 40A (5/50 ns)
Cable Discharge Event (CDE)
- ☐ Package optimized for high-speed lines
- ☐ Ultra-small package (1.0mm×0.6mm×0.55mm)
- ☐ Protects one data, control or power line
- ☐ Low capacitance: 0.35pF (Typical)
- ☐ Low leakage current: 10nA @ V_{RWM} (Typical)
- ☐ Low clamping voltage
- ☐ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge
- ☐ ROHS compliant

Mechanical Characteristics

- ☐ Flammability Rating: UL 94V-0
- ☐ Packaging: Tape and Reel

Applications

- ☐ Serial ATA
- ☐ PCI Express
- ☐ Desktops, Servers and Notebooks
- ☐ Cellular Phones
- ☐ MDDI Ports
- ☐ USB2.0/3.0 Power and Data Line Protection
- ☐ Display Ports
- ☐ Digital Visual Interfaces (DVI)
- ☐ HDMI 1.4/2.0



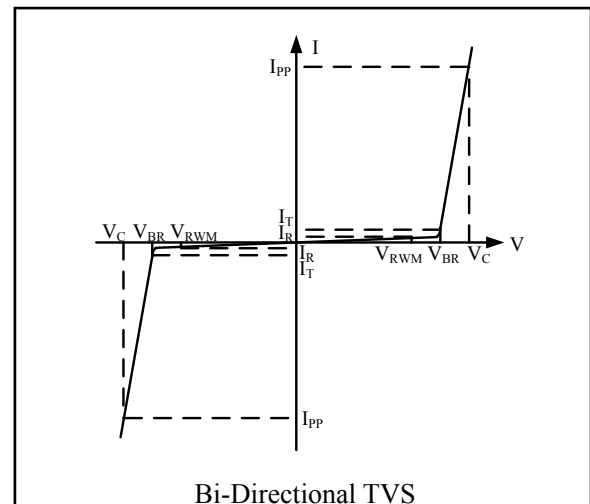


Absolute Maximum Rating

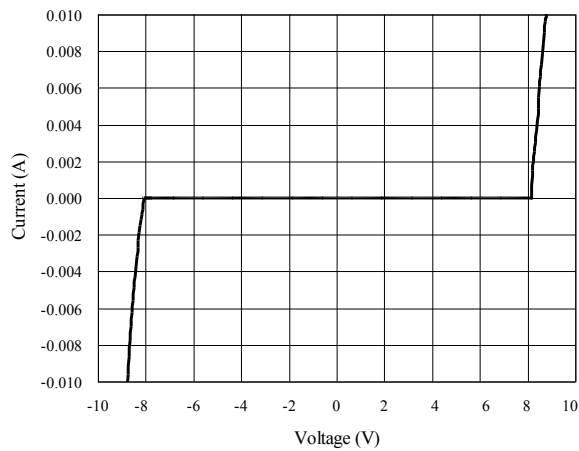
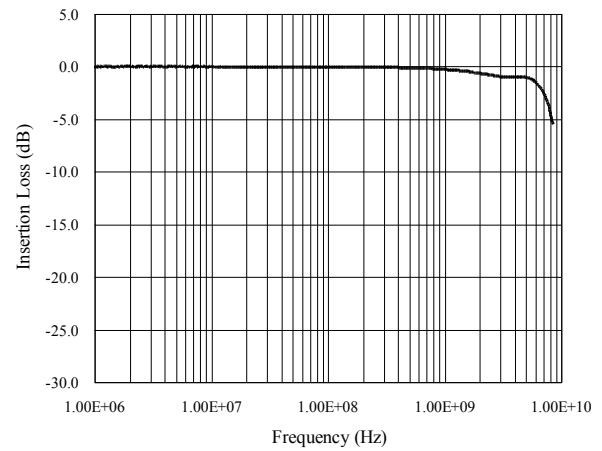
Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ s)	40	W
I_{PP}	Peak Pulse Current($t_p=8/20\mu s$)	3	A
V_{ESD}	ESD per IEC 61000-4-2(Air) ESD per IEC 61000-4-2 (Contact)	± 15 ± 8	kV
T_{OPT}	Operating Temperature	-55/+125	$^{\circ}$ C
T_{STG}	Storage Temperature	-55/+150	$^{\circ}$ C

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

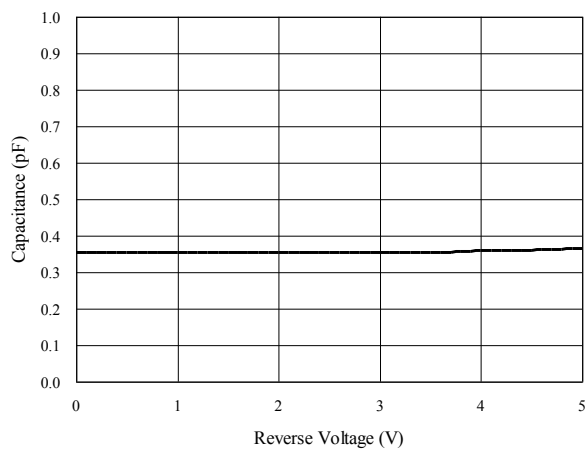
Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Reverse Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Peak Pulse Current
C_{ESD}	Parasitic Capacitance
V_R	Reverse Voltage
f	Small Signal Frequency



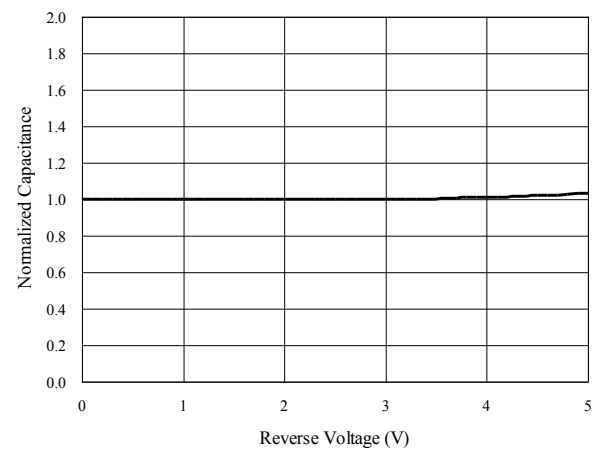
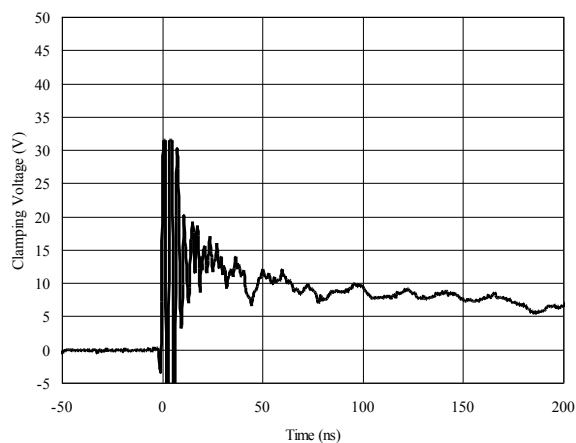
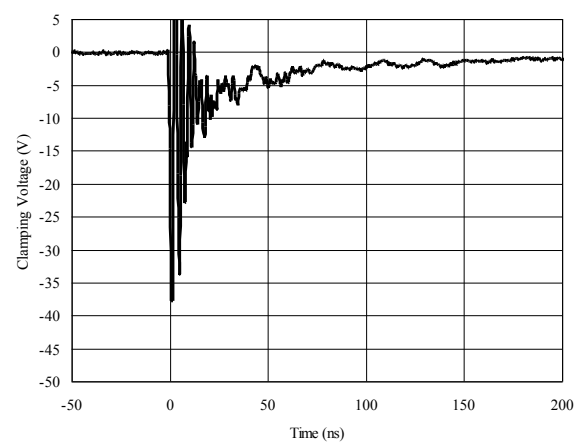
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				5.0	V
I_R	$V_{RWM} = 5V$, T = 25 $^{\circ}$ C Between I/O and I/O		0.01	1.0	μ A
V_{BR}	$I_T = 1mA$ Between I/O and I/O	7.0		9.0	V
V_C	$I_{PP} = 1A$, $t_p = 8/20\mu s$ Between I/O and I/O			10.5	V
V_C	$I_{PP} = 3A$, $t_p = 8/20\mu s$ Between I/O and I/O			13.5	V
C_{ESD}	$V_R = 0V$, f = 1MHz Between I/O and I/O		0.35	0.50	pF

**Voltage Sweeping of I/O to I/O****Insertion Loss S21 of I/O to I/O****Capacitance vs. Voltage of I/O to I/O (f = 1MHz)**

Capacitance vs. Reverse Voltage

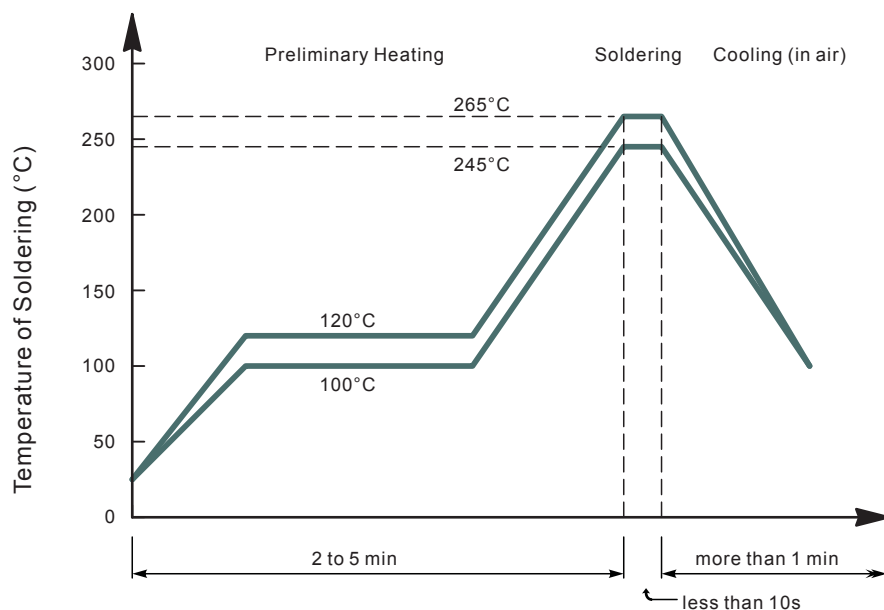


Normalized Capacitance vs. Reverse Voltage

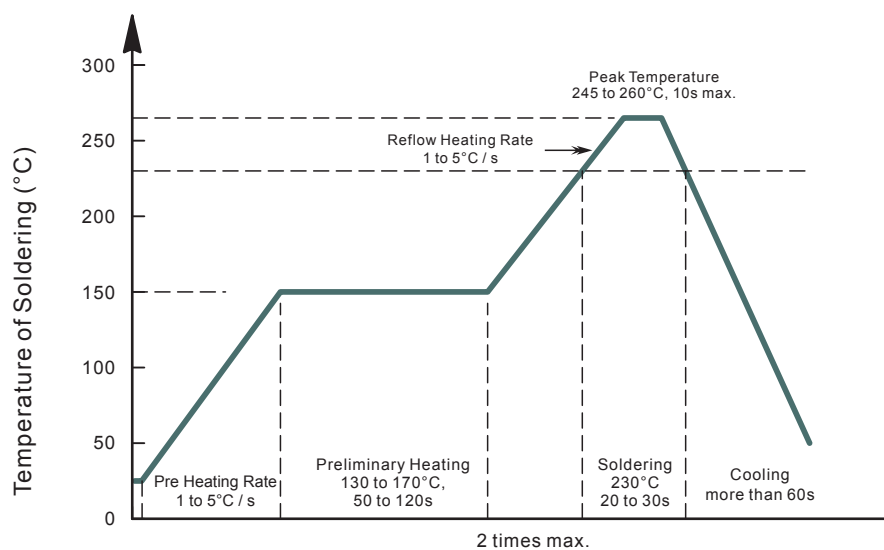
**ESD Clamping of I/O to GND
(+8kV Contact per IEC 61000-4-2)****ESD Clamping of I/O to GND
(-8kV Contact per IEC 61000-4-2)**



- Recommended condition of flow soldering



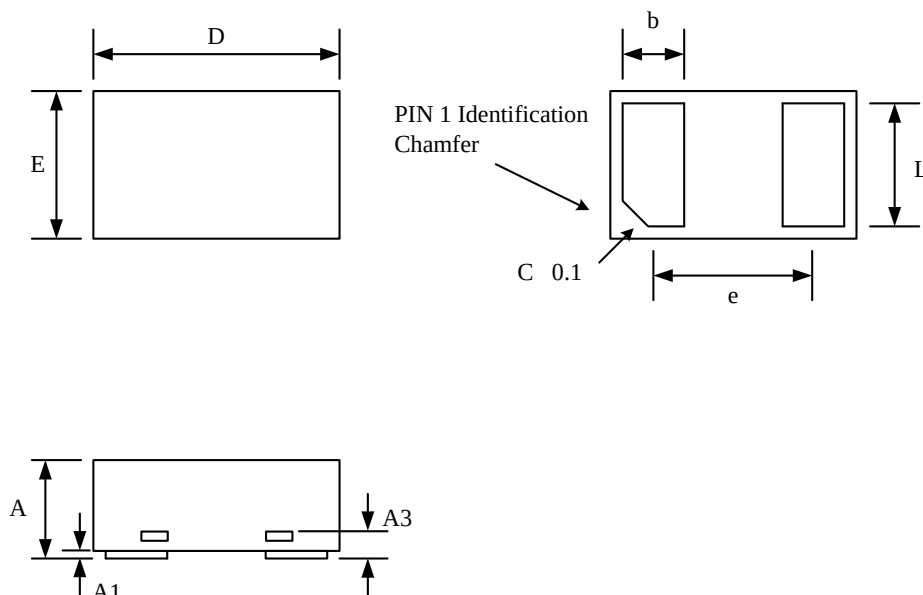
- Recommended condition of reflow soldering





Package Outline

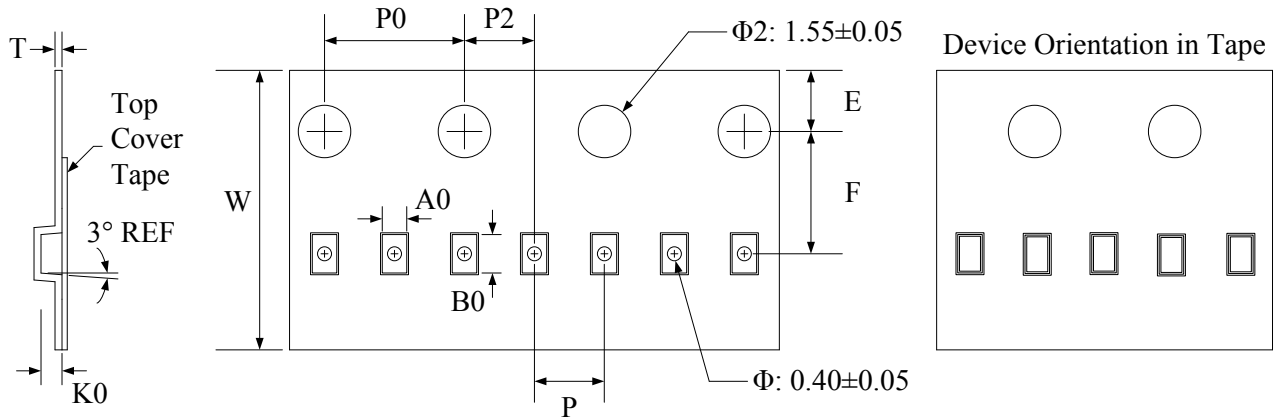
- DFN1006-2L Package
- MSL-1



Package Dimensions (Controlling dimensions are in millimeters)

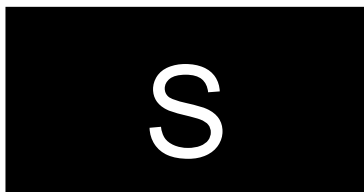
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Minimum	Maximum	Minimum	Maximum
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
A3	0.125 REF		0.005 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b	0.200	0.300	0.008	0.012
e	0.650 BSC		0.026 BSC	
L	0.450	0.550	0.018	0.022

Tape and Reel Specification



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05

Marking Codes



Or



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
ESDQR5V0BJ-T	5V	10,000	7 Inch