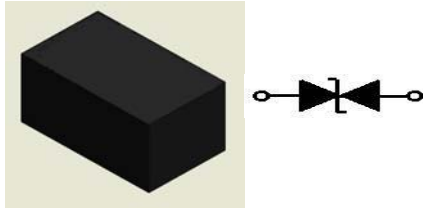




ESDKR5V0BS

5V Bi-directional ESD

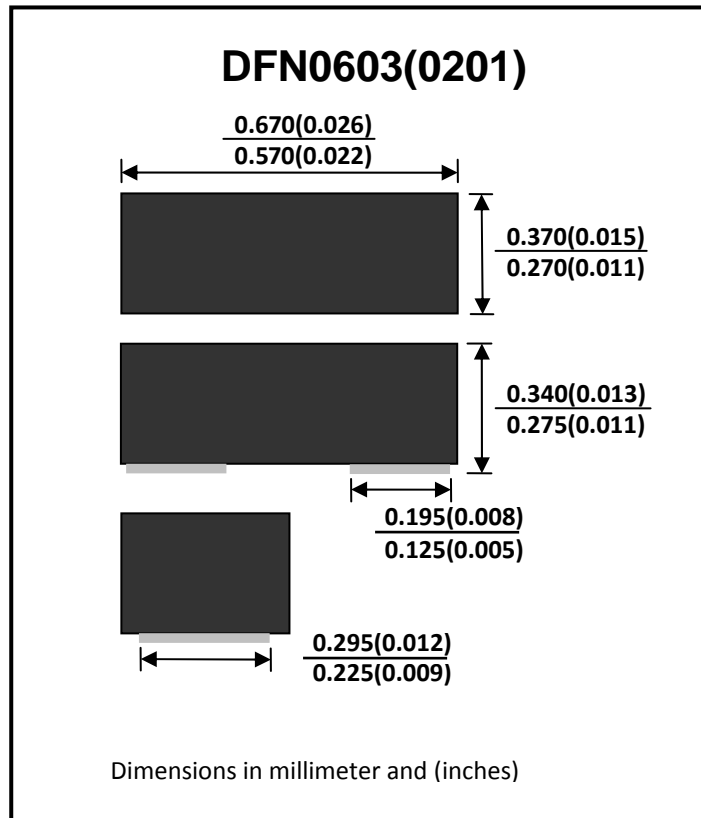


Features

- Surface mount package.
- Bi-directional ESD protection.
- IEC61000-4-2 ± 25 kV(Contact), ± 30 kV(air).
- Ultra small SMD package: 0201.
- Operating voltage: 5V
- Pb free version, RoHS compliant, and Halogen free

Mechanical Characteristics

- Case: DFN0603(0201) standard package
- Terminals: Sn / Au plated, solderable per MIL-STD-750, method 2026
- Marking Code: I
- Mounting position: Any.
- Weight: 0.001 gram(approx.)
- MSL: Level 1



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

Parameter	Condition	Symbol	Min	Typ	Max	Unit
Peak Pulse Power	tp=8/20 μ s (According to IEC61000-4-5)	P _{PP}		50		W
Maximum Peak Pulse Current	tp=8/20 μ s (According to IEC61000-4-5)	I _{PP}	3.5			A
ESD per IEC 61000-4-2 (Air)		V _{ESD}		± 30		kV
ESD per IEC 61000-4-2 (Contact)				± 25		kV
Operating Junction Temperature		T _j	-55		125	°C
Storage Temperature		T _{stg}	-55		150	°C

**Electrical Characteristics (at Ta=25 °C unless otherwise noted)**

Parameter	Condition	Symbol	Min	Typ	Max	Unit
Reverse Stand-Off Voltage		V_{RWM}			5	V
Reverse Breakdown Voltage	$I_t = +1mA$	V_{BR}			9	V
	$I_t = -1mA$				-9	V
Reverse Leakage Current	$V_{RWM} = 5V$	I_R			10	nA
Clamping Voltage	$I_{pp} = 1.0A$, $t_p = 8/20 \mu s$	V_C			12	V
	$I_{pp} = 3.0A$, $t_p = 8/20 \mu s$	V_C			17	V
Clamping Voltage	$I_{pp} = -5A$, $t_{lp} = 0.2/100 ns$	V_C		-15		V
	$I_{pp} = +5A$, $t_{lp} = 0.2/100 ns$	V_C		15		V
	$I_{pp} = -30A$, $t_{lp} = 0.2/100 ns$	V_C		-20		V
	$I_{pp} = +30A$, $t_{lp} = 0.2/100 ns$	V_C		20		V
Junction Capacitance	Between I/O Pin and GND $V_R=0V$, $f=1MHz$	C_J		3	10	pF
Dynamic Resistance ^{1,2}	$T_p=100ns$	R_D		0.23		Ω

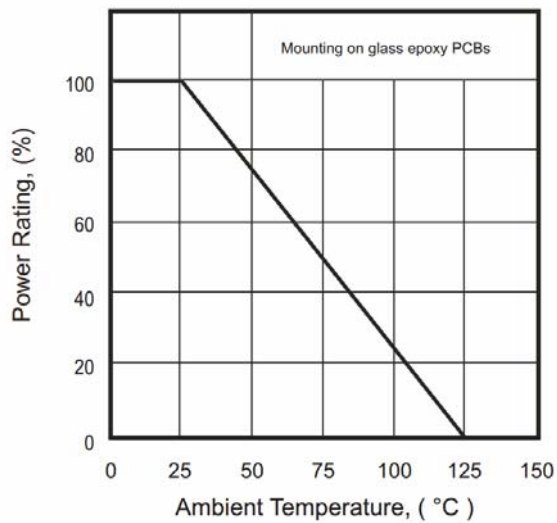
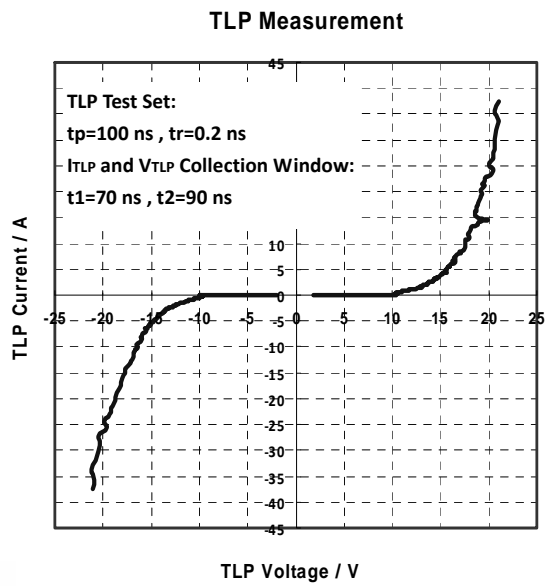
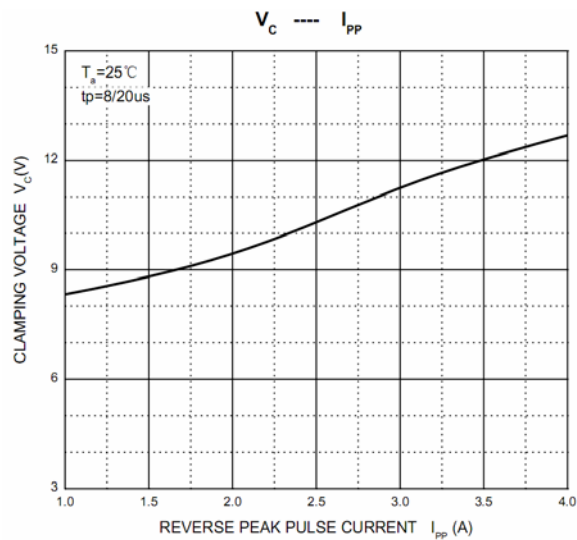
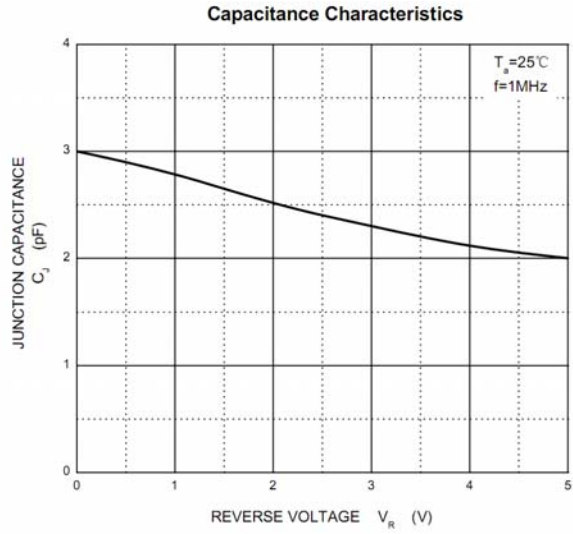
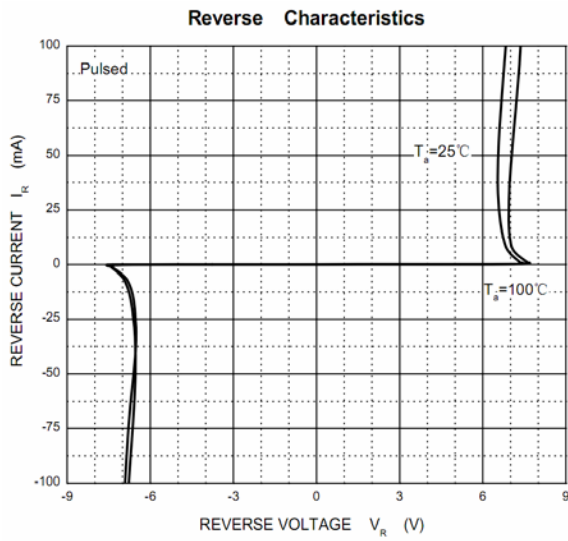
Notes

1) TLP Settings: $t_p = 100ns$, $t_r = 0.2ns$, I_{TLP} and V_{TLP} averaging window: $t_1 = 70ns$ to $t_2 = 90ns$.

2) Dynamic resistance calculated from $I_{TLP} = -5A$ to $I_{TLP} = -30A$ and $I_{TLP} = +5A$ to $I_{TLP} = +30A$

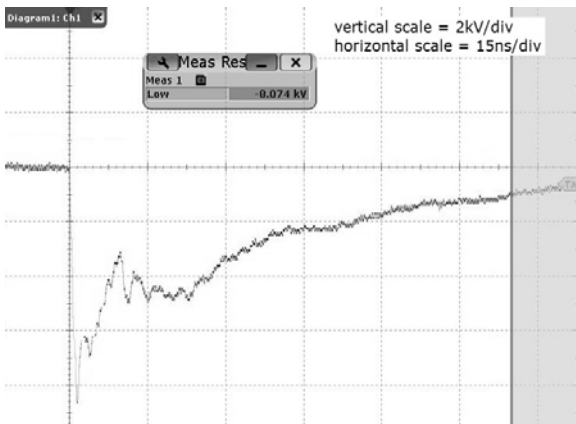


Typical Characteristics

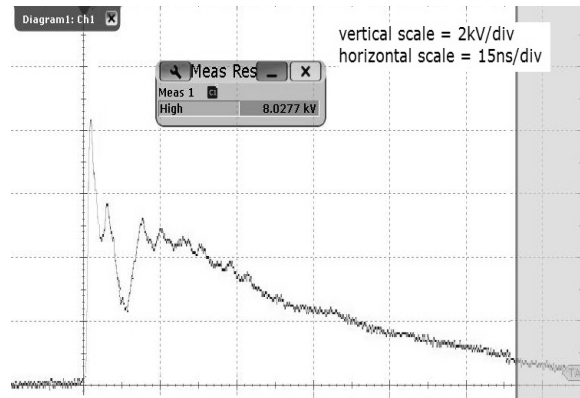




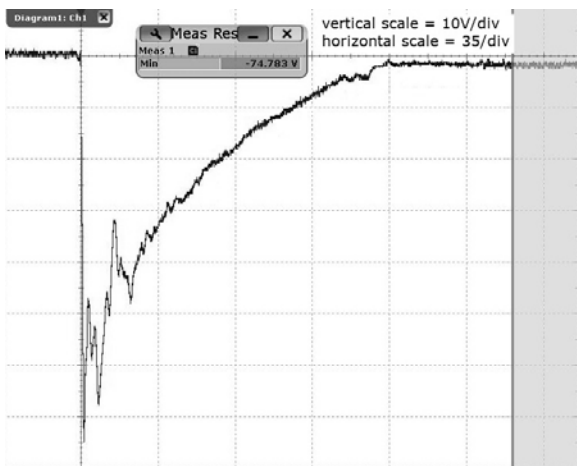
Unclamped -8 kV ESD pulse waveform
(IEC61000-4-2 network)



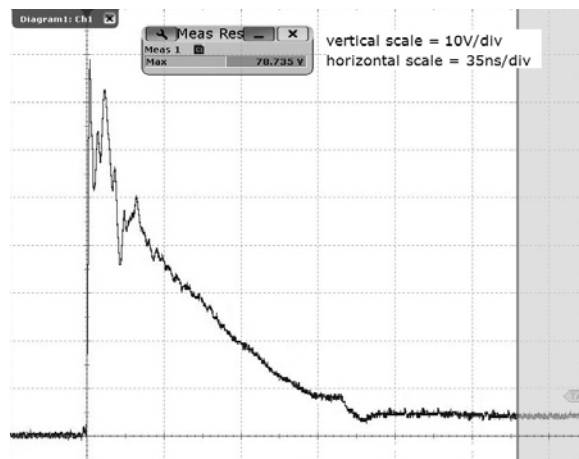
Unclamped +8 kV ESD pulse waveform
(IEC61000-4-2 network)



Clamped -8 kV ESD pulse waveform
(IEC61000-4-2 network)



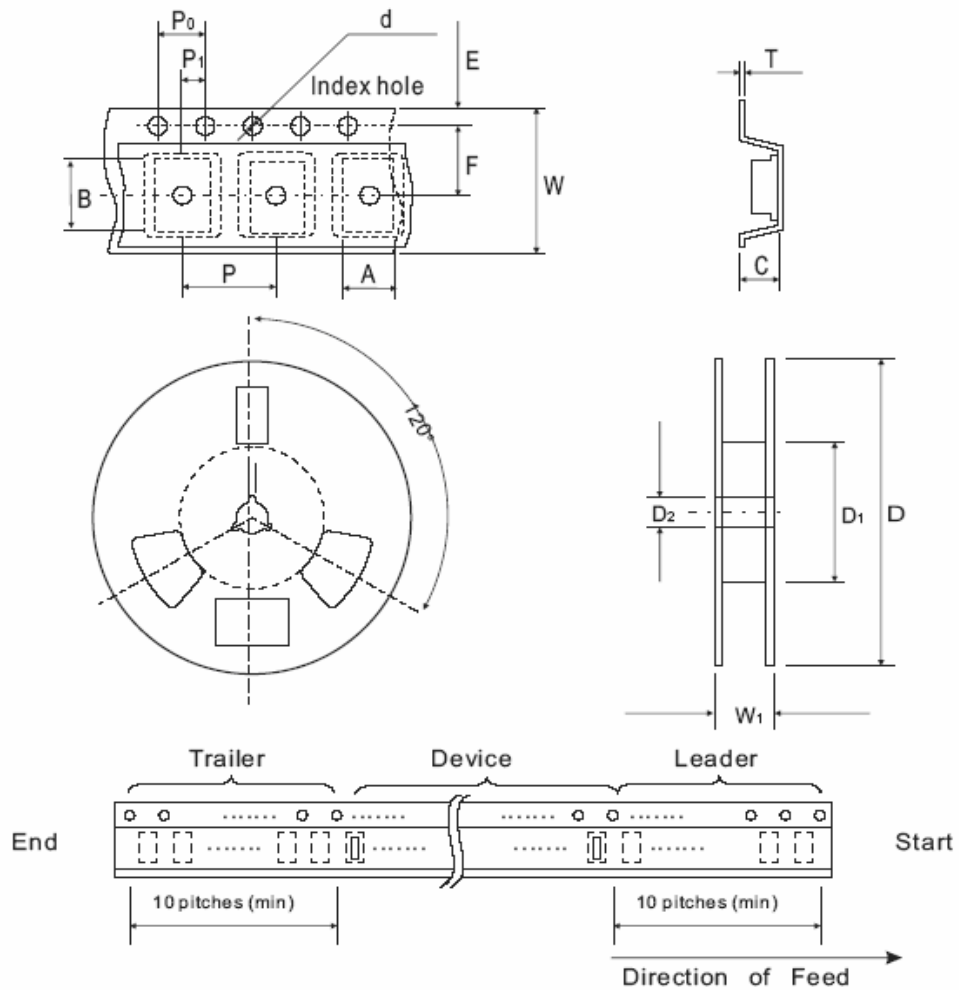
Clamped +8 kV ESD pulse waveform
(IEC61000-4-2 network)





ESD Diode

Packing Specification



Tape & Reel Dimensions

Package	Unit	A	B	C	d	D
DFN0603	mm	0.37±0.03	0.67±0.03	0.32±0.03	1.50±0.10	178±1
	inch	0.015±0.001	0.026±0.001	0.013±0.001	0.060±0.004	7.008±0.04

Package	Unit	D1	D2	E	F	P
DFN0603	mm	60MIN	13.0±0.20	1.75±0.10	3.5±0.10	2.0±0.03
	inch	2.362MIN	0.512±0.008	0.069±0.004	0.138±0.004	0.079±0.001

Package	Unit	P0	P1	T	W	W1
DFN0603	mm	4.0±0.10	2.0±0.10	0.18±0.05	8.0±0.10	10.5±0.5
	inch	0.157±0.004	0.079±0.004	0.007±0.002	0.315±0.004	0.413±0.02

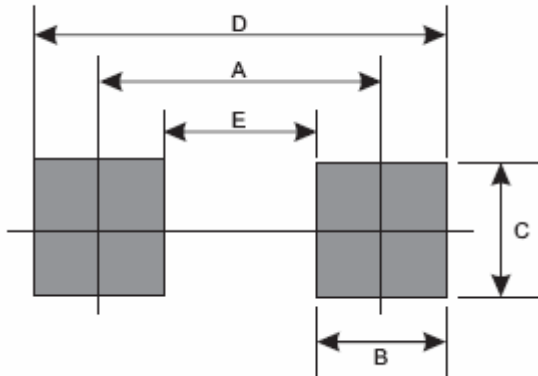


ESD Diode

Standard Package

Package	Reel Size	Qty/Reel
DFN0603	7"	10,000 pcs

Recommended Soldering Footprint

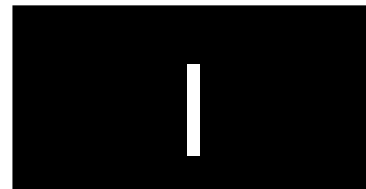


Reflow Soldering

Product Size	Dimension/ mm				
	A	B	C	D	E
DFN0603	0.420	0.220	0.360	0.640	0.200
	0.017"	0.009"	0.014"	0.025"	0.008"

Marking Code

Part Number	Marking Code
ESDKR5V0BS	I



Disclaimers

These products are not designed for use in applications where any failure or malfunction may result in personal injury, death or severe property or environmental damage such as medical, military, aircraft, space or life support equipments.