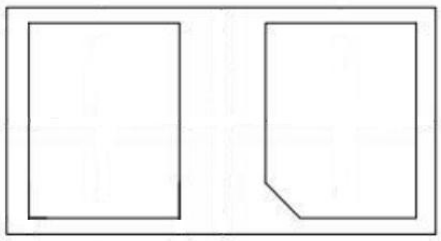
ASD05CLCMA-Q1

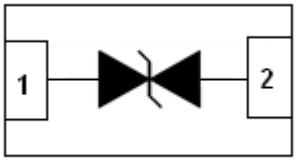
Bidirectional TVS Diode for ESD Protection

FEATURES:

- ✧ Protects one bi-directional I/O line
- ✧ Low capacitance: 0.4pF(Max)
- ✧ Low operating voltage: 5.0V
- ✧ Compliant to Halogen-free
- ✧ Suffix "-Q1" for AEC-Q101



DFN0603



PIN Configuration

MAIN APPLICATIONS

- ✧ Smart Phone and Tablet PC
- ✧ TV and Set Top Boxts
- ✧ Wearable Devices
- ✧ PDA

PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) ±25kV (Air), ±20kV (Contact)
- ✧ IEC61000-4-5 (Lightning) 4A (8/20μs)

MECHANICAL CHARACTERISTICS

- ✧ Package : DFN0603
- ✧ Molding Compound Flammability Rating : UL 94V-O
- ✧ Lead Finish : Lead Free
- ✧ Marking Code : H

ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-55 to +150	℃
Operating junction temperature range	T_j	-55 to +125	℃
Peak pulse power dissipation on 8/20 μs waveform	P_{PP}	80	W
Peak pulse current(8/20μs)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	+/- 25 +/- 20	kV

ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_R				5.0	V
Reverse Breakdown Voltage	V_{BR}	I_R = 1mA	6.5	7.5	9.0	V
Reverse Leakage Current	I_R	V_R = 5V			0.1	μA
Clamping Voltage	V_C	I_{PP} = 1A, tp =8/20μs		10		V
		I_{PP} = 4A, tp =8/20μs		18	20	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		0.25	0.4	pF

Typical Performance Characteristics

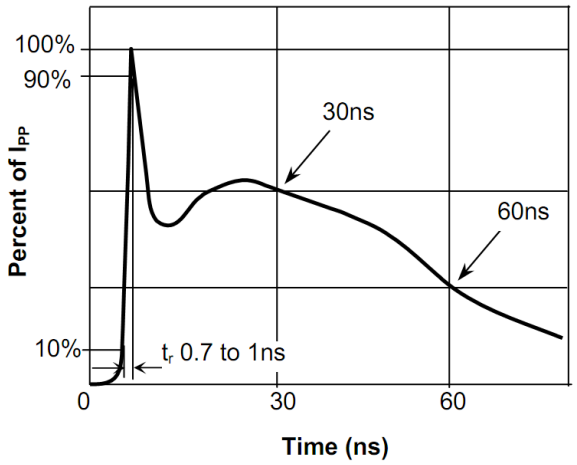


Fig.1 Pulse Waveform-ESD (IEC61000-4-2)

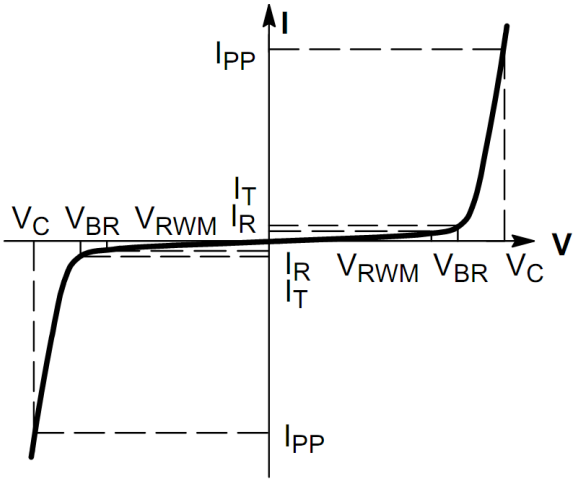


Fig.2 Bidirectional Characteristics

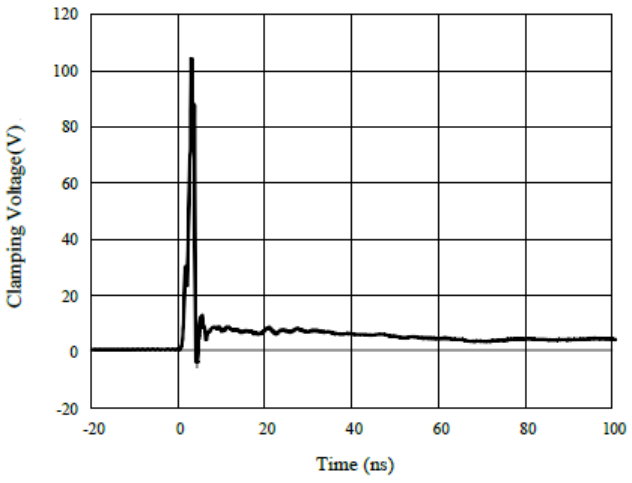


Fig.3 Clamping Voltage at IEC61000-4-2 +8kV Pulse Waveform

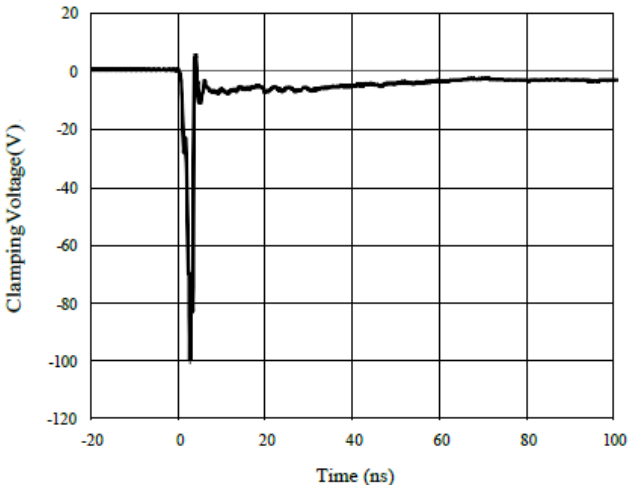
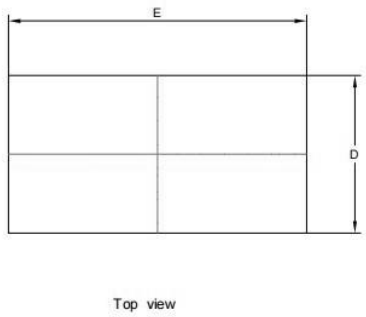
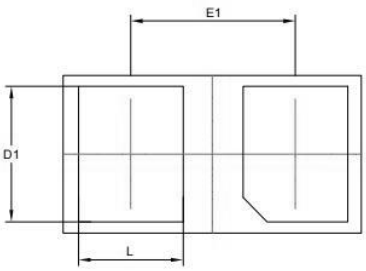


Fig.4 Clamping Voltage at IEC61000-4-2 -8kV Pulse Waveform

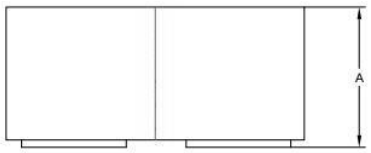
PACKAGE MECHANICAL DATA



Top view



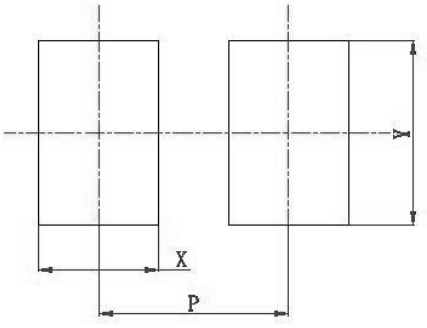
Bottom view



Side view

Symbol	Dimensions In Millimeters		
	Min	Typical	Max
A	0.28	0.30	0.32
D	0.25	0.30	0.35
E	0.55	0.60	0.65
D1	0.20	0.25	0.30
E1	0.31	0.37	0.43
L	0.14	0.19	0.24

SUGGESTED LAND PATTERN



Symbol	Dimension in Millimeters
	typ
X	(0.32)
Y	(0.40)
P	(0.47)