RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ESD03CL

Bidirectional Ultra Low Capacitance ESD/Surge Protection

DESCRIPTION

The ESD03CL is an ultra low capacitance ESD and Surge Protector designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. ESD03CL is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 (±15kV air, ±8kV contact discharge), IEC 61000-4-4 (EFT, 40A 5/50ns), IEC 61000-4-5 (Surge, 10A 8/20μs), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD03CL is in an SOD-323 package. The combined features of ultra-low capacitance and high ESD robustness make ESD03CL ideal for applications where arrays are not practical. The low clamping voltage of ESD03CL guarantees a minimum stress on the protected IC.

FEATURES

✧IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
✧IEC61000-4-4 (EFT) 40A (5/50ns)
✧IEC61000-4-5 (Surge) 10A (8/20μs)
✧Protects one I/O line (bidirectional)
✧Low operating and clamping voltage
✧Low leakage current

MACHANICAL DATA

✧SOD-323 package
✧Flammability Rating: UL 94V-0
✧Packaging: Tape and Reel
✧High temperature soldering guaranted:260℃/10s
✧Reel size: 7 inch

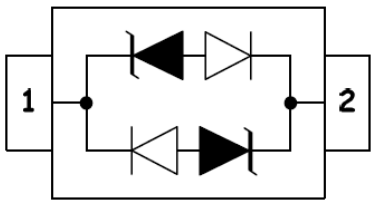
ORDERING INFORMATION

✧Device:ESD03CL
✧Package: SOD-323
✧Marking: CA1
✧Material: Halogen free
✧Packing: Tape & Reel
✧Quantity per reel: 3,000pcs

APPLICATIONS

✧Cell Phone Handsets and Accessories
✧Microprocessor based equipment
✧Personal Digital Assistants (PDA's)
✧Notebooks, Desktops, and Servers
✧Portable Instrumentation
✧Peripherals
✧Analog Inputs

PIN CONFIGURATION



PACKAGE OUTLINE



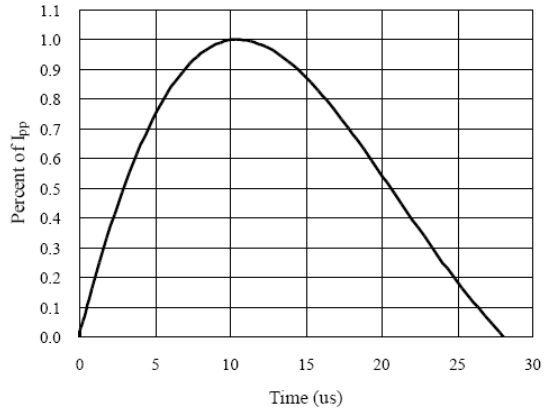
2020-12/01
REV:A

ABSOLUTE MAXIMUM RATING (Tamb=25°C, unless otherwise specified)			
Symbol	**Parameter**	**Value**	**Units**
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	±15 ±8	kV
P_{PP}	Peak Pulse Power (8/20μs)	150	W
I_{PP}	Peak Pulse Current (8/20μs)	10	A
T_{OPT}	Operating Temperature	-45 ~ +85	°C
T_{STG}	Storage Temperature	-55 ~ +150	°C

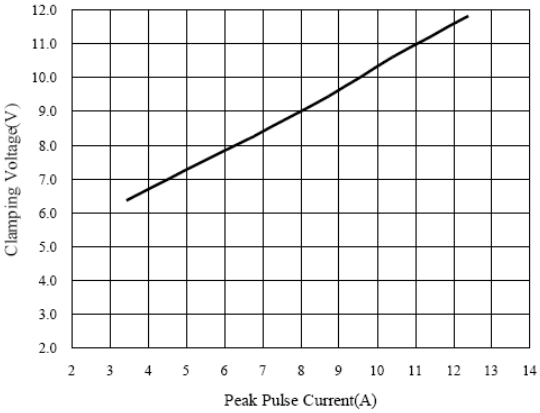
ELECTRICAL CHARACTERISTICS (Tamb=25°C,unless otherwise specified)						
Symbol	**Parameter**	**Test Condition**	**Min**	**Typ**	**Max**	**Units**
V_{RWM}	Reverse Working Voltage				3.3	V
V_B	Reverse Breakdown Voltage	I_R = 1mA	3.5			V
I_R	Reverse Leakage Current	V_{RWM} = 3.3V			500	nA
V_{C1}	Clamping Voltage 1	I_{PP} = 1A, t_p = 8/20μs			6.5	V
V_{C2}	Clamping Voltage 2	I_{PP} = 10A, t_p = 8/20μs			15.0	V
C_{ESD}	Parasitic Capacitance	V_R = 0V, f = 1MHz			1.0	pF

RATING AND CHARACTERISTICS CURVES (ESD03CL)

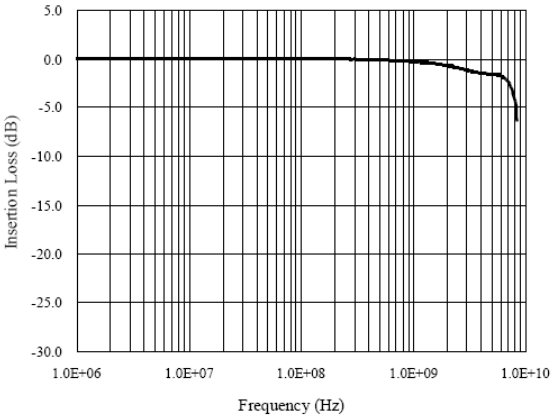
8/20μs Pulse Waveform



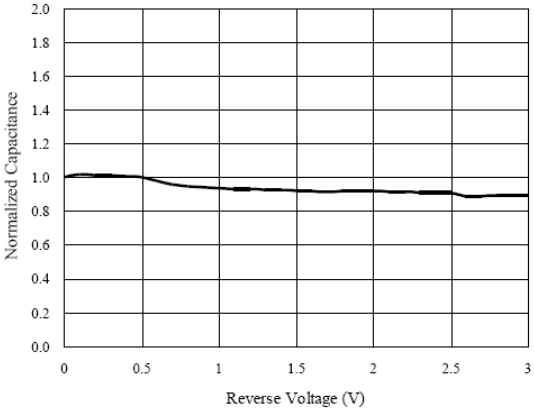
Clamping Voltage V_C vs. Current I_{PP}



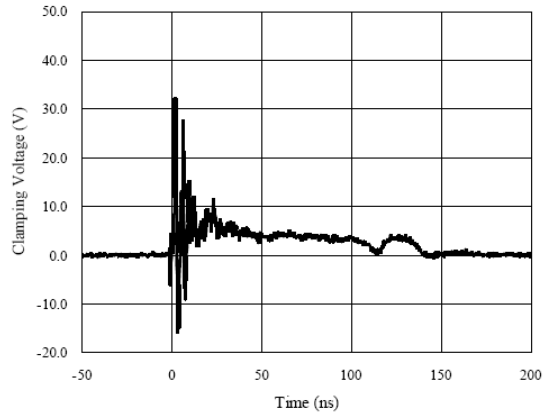
Insertion Loss S21



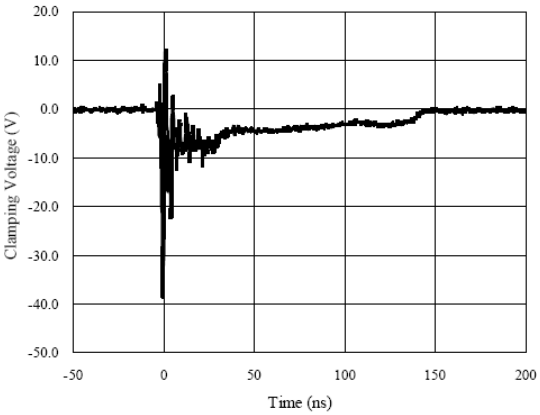
Normalized Capacitance vs. Voltage



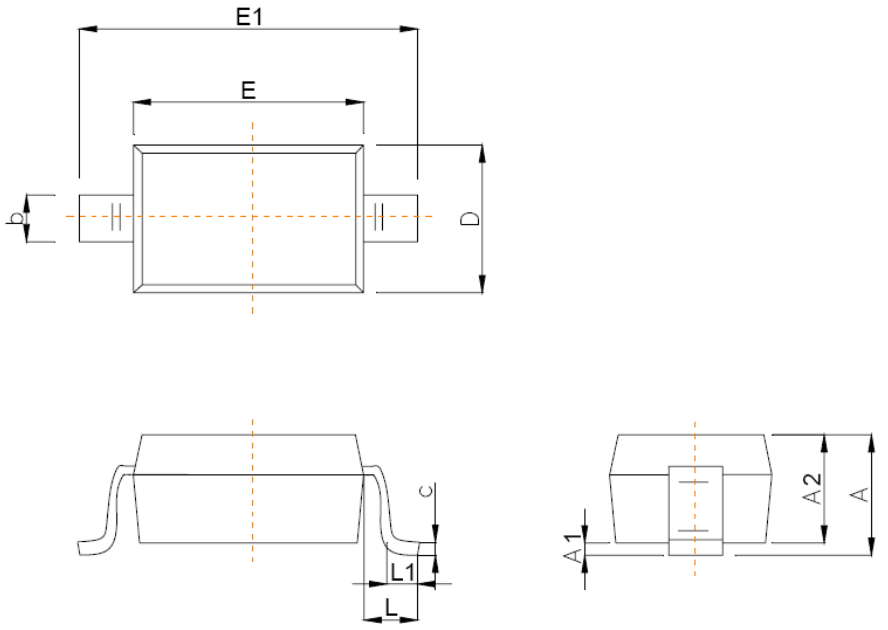
ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)



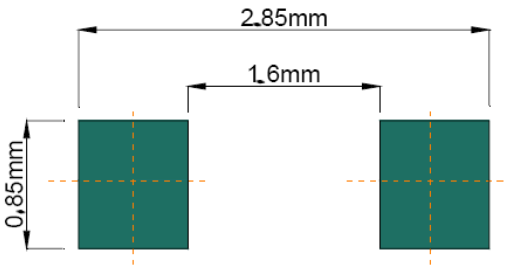
ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)



SOD-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°



Recommended Pad outline

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