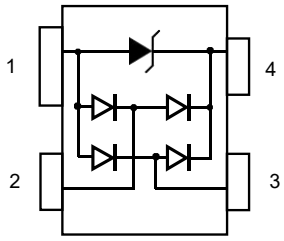
CD143A-SR05
ESD PROTECTION DIODE

Discription

The CD143A-SR05 is a 2-channel ultra low capacitance rail clamp ESD protection diodes array. Each channel consists of a pair of ESD diodes that steer positive or negative ESD current to either the positive or negative rail.A zener diode is integrated in to the array between the positive and negative supply rails.In the typical applications, the negative rail pin (assigned as GND) is connected with system ground. The Positive ESD current is steered to the ground through an ESD diode and Zener diode and the positive ESD voltage is clamped to the zener voltage.

Pin 1

SOT-143



Circuit Diagram

Features

- 350 W Peak Power per Line (tp = 8/20μs)
- SOT-143 package
- ESD Protection > 15 kV
- Unidirectional configurations
- Protects 2 I/O Ports & Power Supply
- Low Capacitance: 4 pF
  Low clamping voltage
- RoHS Compliant in Lead-Free Versions
- Transient protection for data lines to IEC 61000-4-2(ESD)
  ±15KV(air) ±8KV(contact); IEC 61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Product ID	Pack	Qty(PCS)
CD143A-SR05	SOT-143	3000

Absolute Ratings(Tamb = 25°C)

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (t_p = 8/20μs)	350	W
T_L	Maximum lead temperature for soldering during 10s	260	°C
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_{op}	Operating Temperature Range	-40 to +125	°C
T_j	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD) air discharge contact discharge	±15 ±8	KV

Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA	6		8.5	V
Reverse Leakage Current	I_R	V_{RWM} =5.0V, T=25℃			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs			12.5	V
Clamping Voltage	V_C	I_{PP}=5A, t_P = 8/20μs			24.0	V
Capacitance Between IO and GND	C_J	V_R=0V, f = 1MHz		3.0		pF
Capacitance Between IO and I/O	C_J	V_R=0V, f = 1MHz		1.5		pF

Characteristic Curves

FIG1: Pulse Waveform

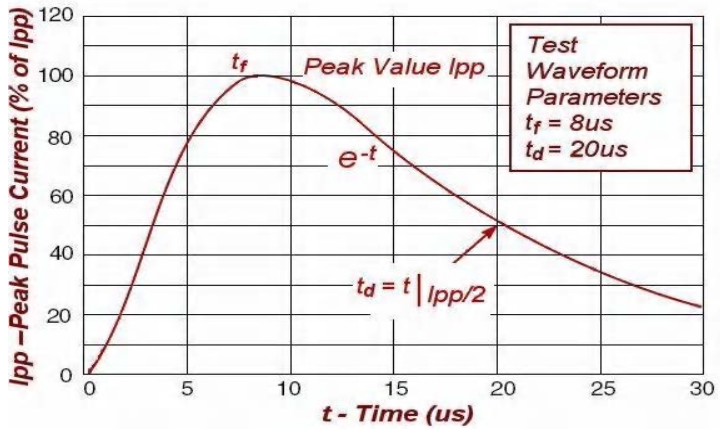
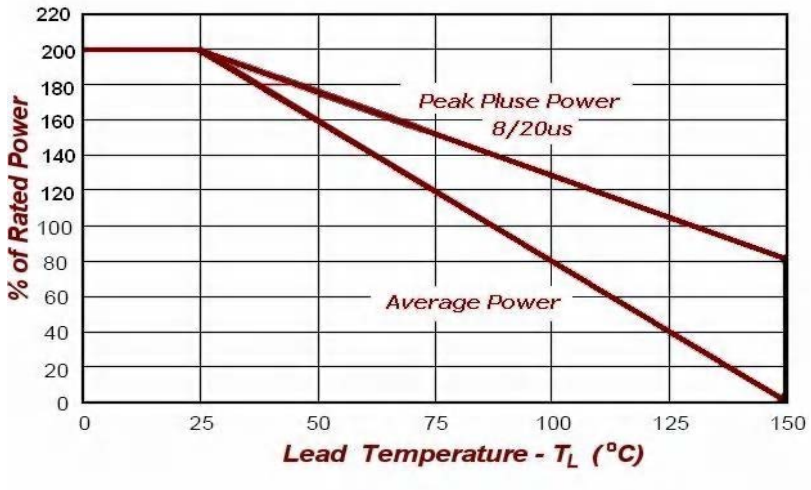
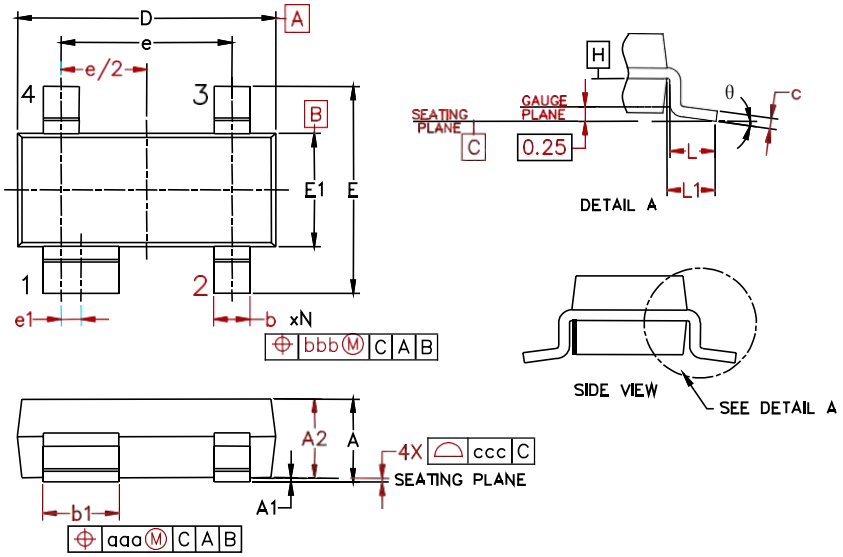


FIG2:Power Derating



Package Mechanical Data



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.031	-	0.048	0.80	-	1.22
A1	0.000	-	0.008	0.013	-	0.15
A2	0.020	0.035	0.042	0.75	0.90	1.07
b	0.011	-	0.020	0.30	-	0.51
b1	0.029	-	0.037	0.76	-	0.94
c	0.003	-	0.008	0.08	-	0.20
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075			1.92 BSC		
e1	0.008			0.20 BSC		
L	0.015	0.020	0.024	0.40	0.50	0.60
L1	(0.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	0.006			0.15		
bbb	0.008			0.20		
ccc	0.004			0.10		

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