

ESDSR05

Description

The ESDSR05 consists of four, low capacitance steering diodes and a low voltage TVS diode that provide protection against ESD and lightning surge events. Each channel or I/O pin can safely absorb up to 3A ($t_p=8/20 \mu s$) and repetitive ESD strikes above the maximum level (Level 4) specified in the IEC 61000-4-2 international standard without performance degradation.

The low capacitance of the steering diode allows the designer to protect high speed data applications. The small SOT-143 package with four leads reduces the internal lead inductance for low overshoot voltage during fast front time transient events such as ESD and EFT.

Features

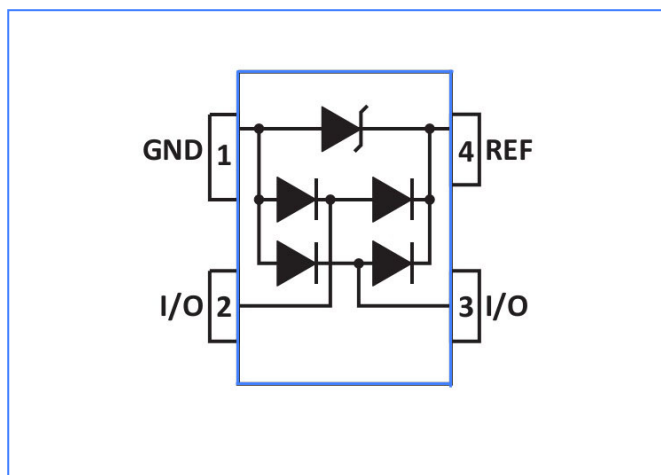
- Case :JEDEC SOT-143 package
- Low capacitance
- Low clamping voltage
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 15kV$
 - Contact discharge: $\pm 10kV$

Applications

- USB 2.0
- 10/100/1000 Ethernet
- Video Graphics Cards
- SIM Ports



Functional Diagram



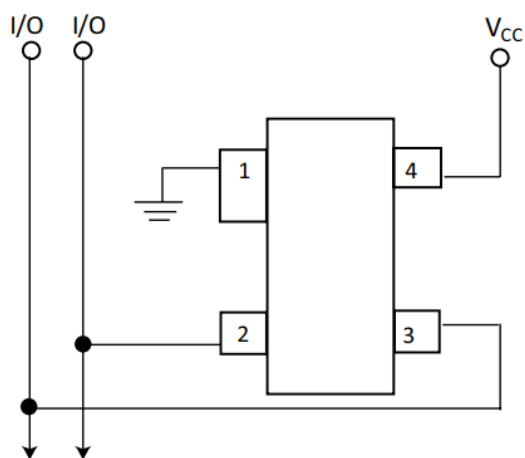
Absolute Maximum Ratings($T_{amb}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	36	Watts
Peak Current ($t_p=8/20 \mu s$)	I_{pp}	3	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 10	KV
Lead Soldering Temperature	T_L	260 (10 sec)	$^{\circ}C$
Operating Temperature Range	T_J	-55 to +125	$^{\circ}C$
Storage Temperature Range	T_{STJ}	-55 to +150	$^{\circ}C$

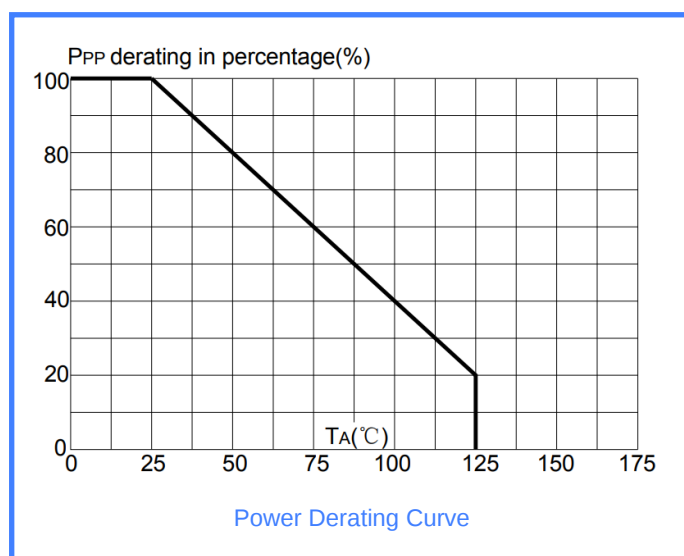
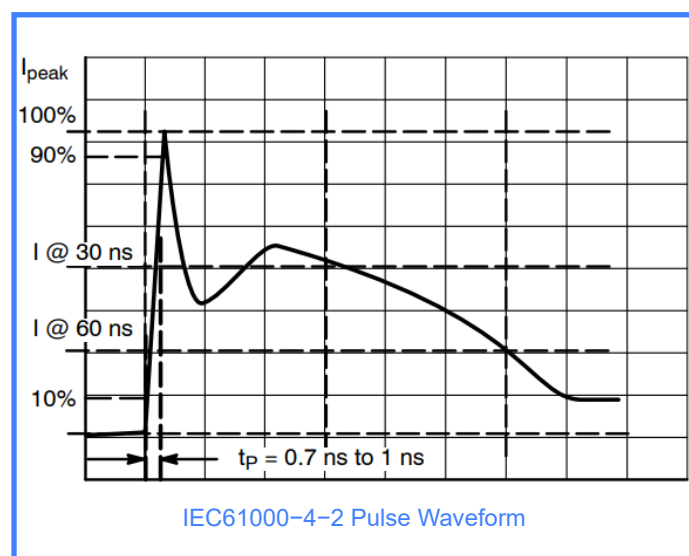
Electrical Characteristics (TA = 25 °C unless otherwise noted)

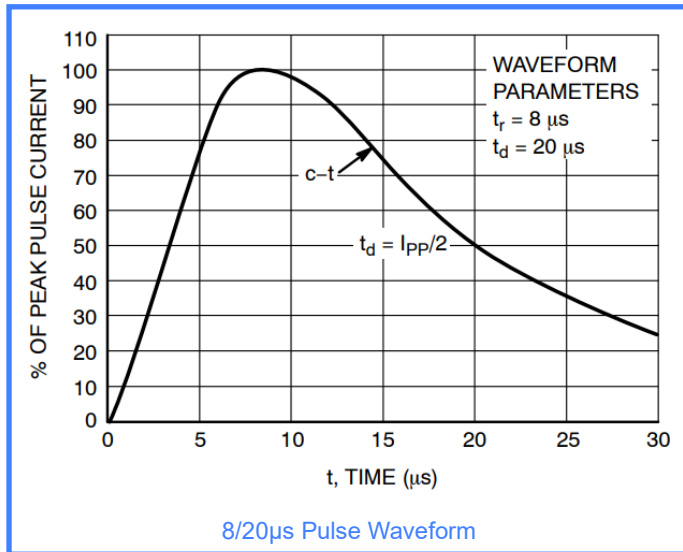
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{RWM}	Reverse Working Peak Voltage	-			5.0	V
V_{BR}	Reverse Breakdown Voltage	$I_T = 1mA$	6.0		8.0	V
I_R	Reverse Current	$V_{RWM} = 5V$			1	μA
V_C	Clamping Voltage	$I_{PP}=3A, t_P=8/20\mu s$		10	12	V
C_{J1}	I/O- I/O	$V_R = 0V, f = 1MHz$		0.5	0.6	pF
C_{J2}	I/O-GND	$V_R = 0V, f = 1MHz$		1	1.2	pF

Application Example

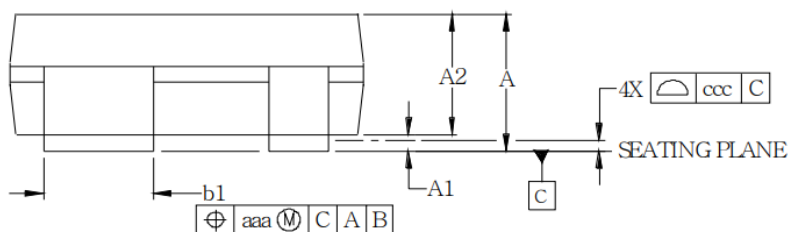
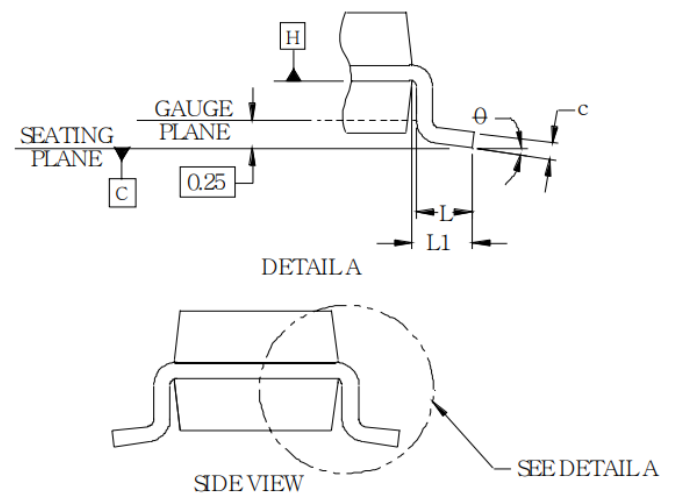
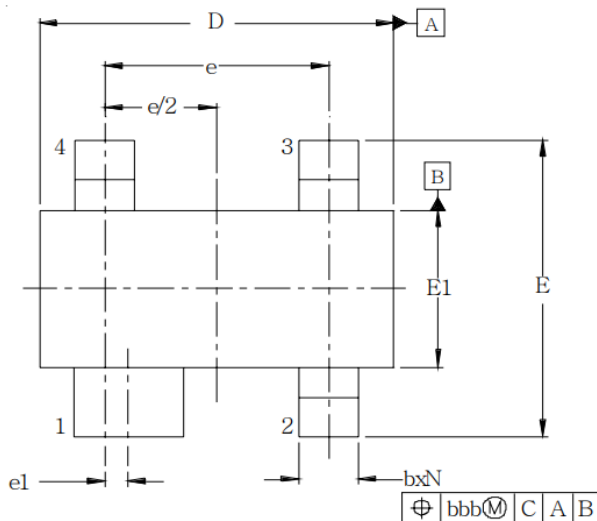


Characteristics Curves





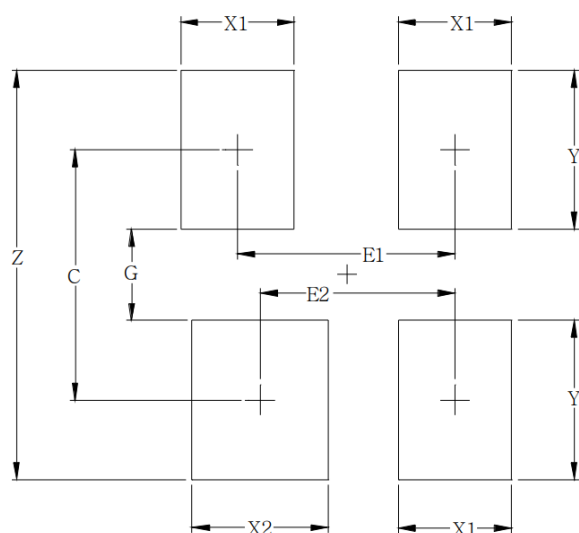
Ackage outline dimensions in millimeters (inches) :SOT-143



DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.031	-	0.048	0.80	-	1.22
A1	0.000	-	0.006	0.013	-	0.15
A2	0.029	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			0.20BSC		
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		

Recommended Pad Layout



SYM	INCHES	MILLIMETERS
C	0.087	2.20
E1	0.076	1.92
E2	0.068	1.72
G	0.031	0.80
X1	0.039	1.00
X2	0.047	1.20
Y	0.055	1.40
Z	0.141	3.60

Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.