

ESD Diode

Features

- Protects two data lines and one power line
- Peak Pulse current (8/20 μ s) MAX : 5A
- IEC61000-4-2 (ESD) $\pm$ 25kV (air), $\pm$ 20kV (contact)
- Low clamping voltage
- Low leakage current
- Working voltages:5V
- RoHS Compliant
- P/N suffix V means AEC-Q101 qualified, e.g: ESD0503DV
- P/N suffix V means Halogen-free

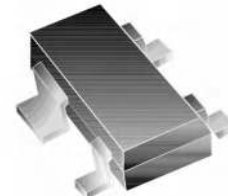
Mechanical Characteristics

- Package: SOT-143
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Tape Reel :3000pcs, Packing Code:-T

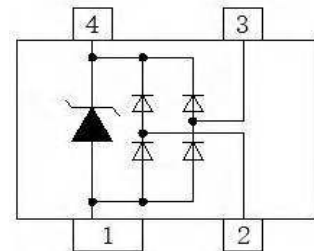
Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation, Digital Cameras
- Peripherals, Audio Players, Industrial Equipment

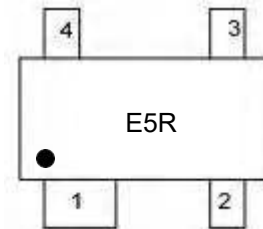
Appearance&Symbol



SOT-143



Marking Information



E5R Marking Code

Absolute Maximum Ratings(T=25°C unless otherwise noted)

Parameters	Symbol	Value	Unit
Peak Pulse Power (tp 8/20 μ s waveform)	P _{PP}	75	W
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	$\pm$ 25 $\pm$ 20	KV
Peak Pulse Current (8/20 μ s)	I _{PP}	5	A
Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

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

Parameters	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	$V_{(BR)}$	$I_R = 1mA$	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5V$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1A, T_P=8/20\mu s$			10	V
Clamping Voltage	V_C	$I_{PP} = 5A, T_P=8/20\mu s$			15	V
Junction Capacitance	C_J	$V_R=0V, f=1MHz$ (any I/O pin to ground)		0.6	0.8	pF
Junction Capacitance	C_J	$V_R=0V, f=1MHz$ (between I/O pins)		0.3	0.4	pF

RATING AND CHARACTERISTICS CURVES (ESD0503DV)

FIG1: Power rating derating curve

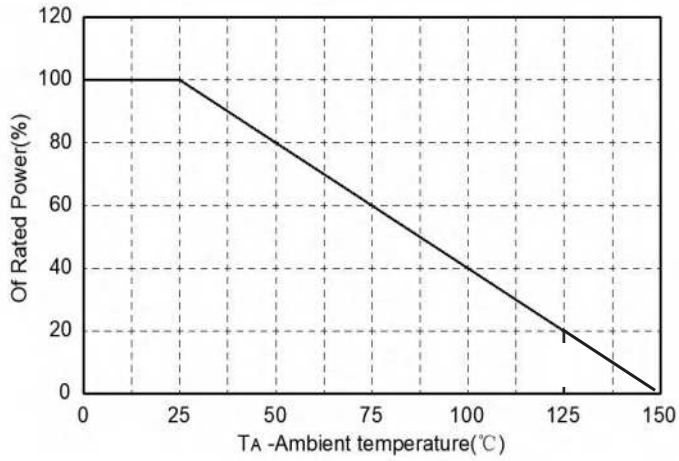


FIG2: pulse Waveform

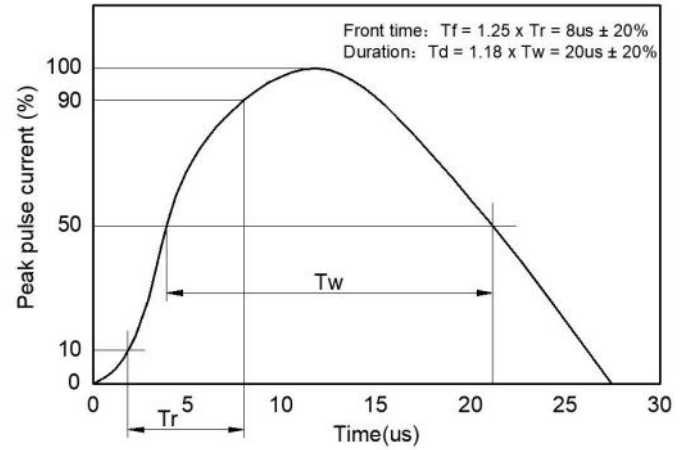


FIG3: Capacitance between terminals characteristics

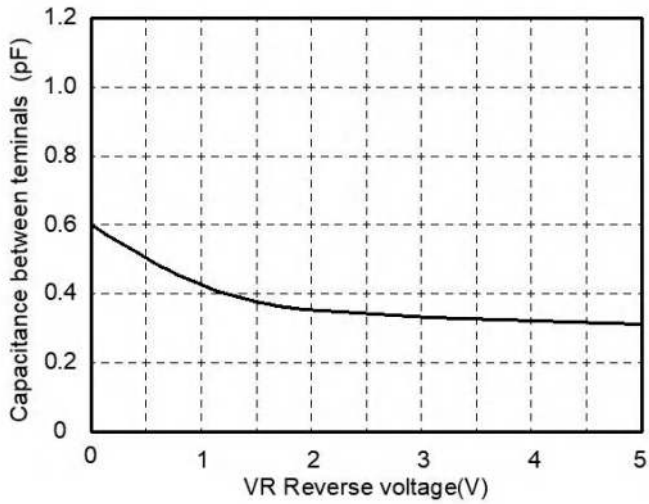
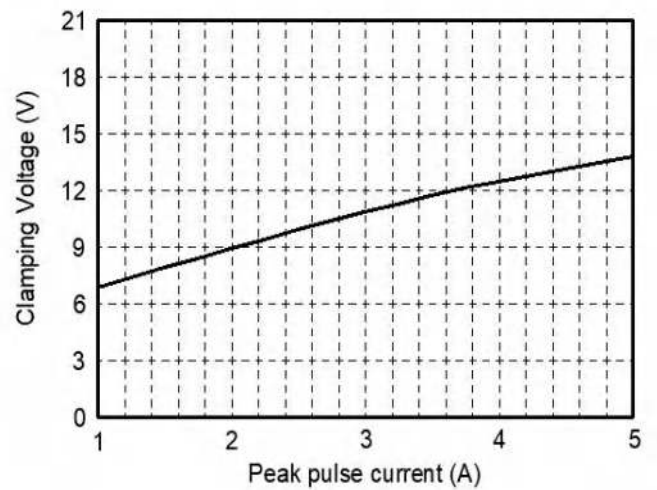
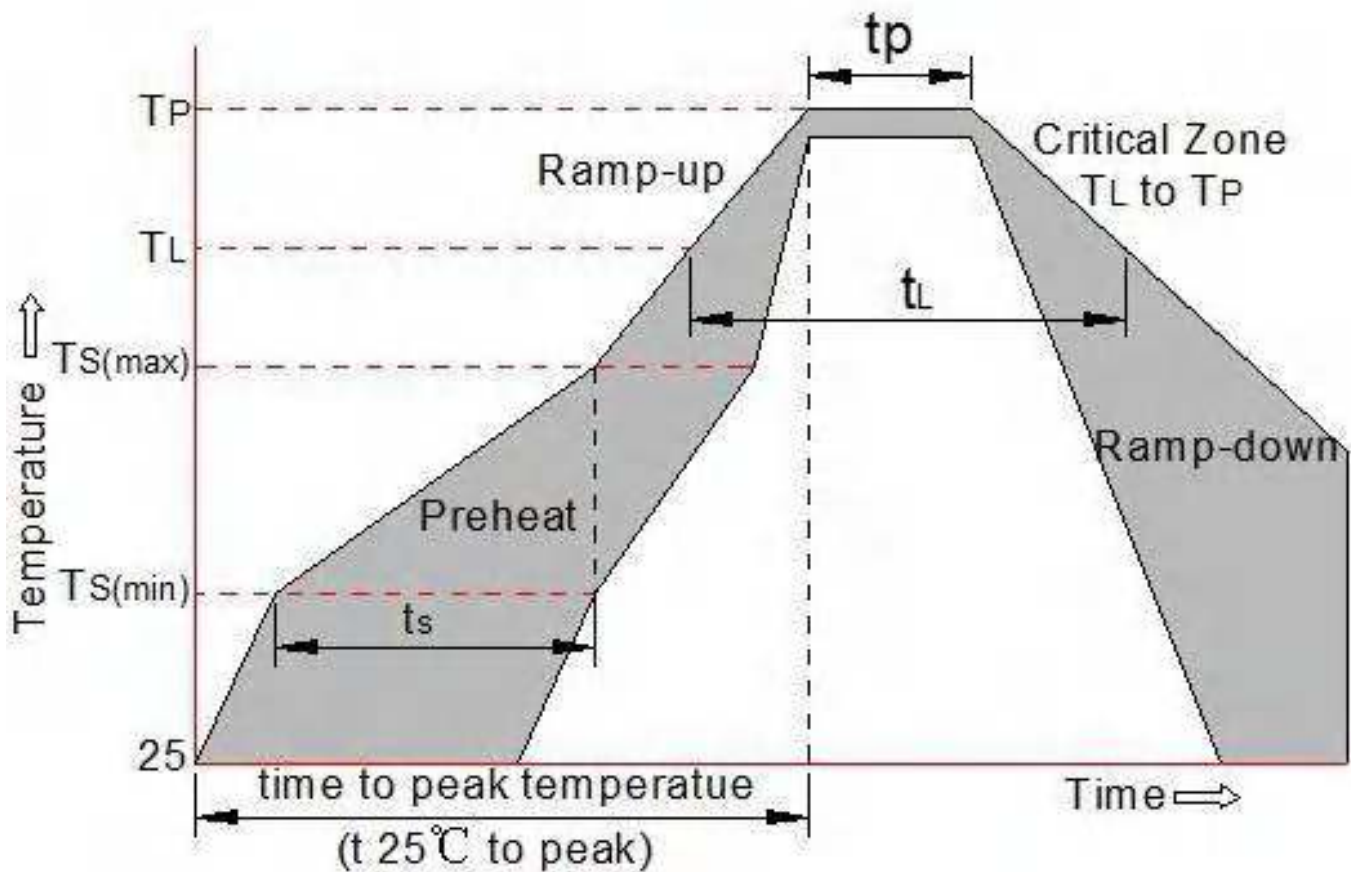


FIG4: Clamping Voltage vs. Peak Pulse Current

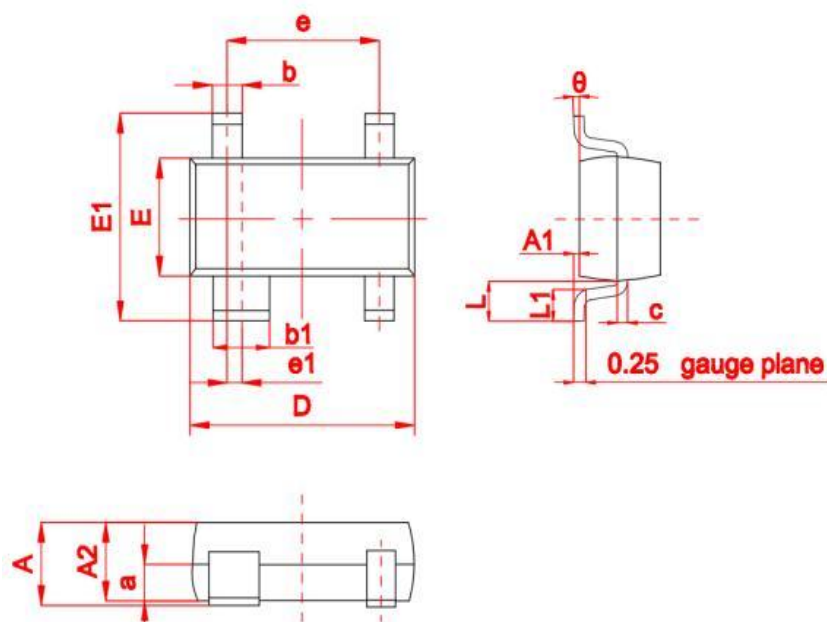


Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C

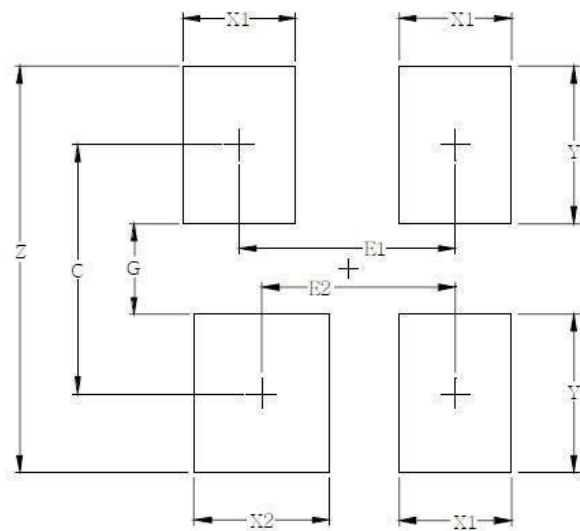


Package mechanical data



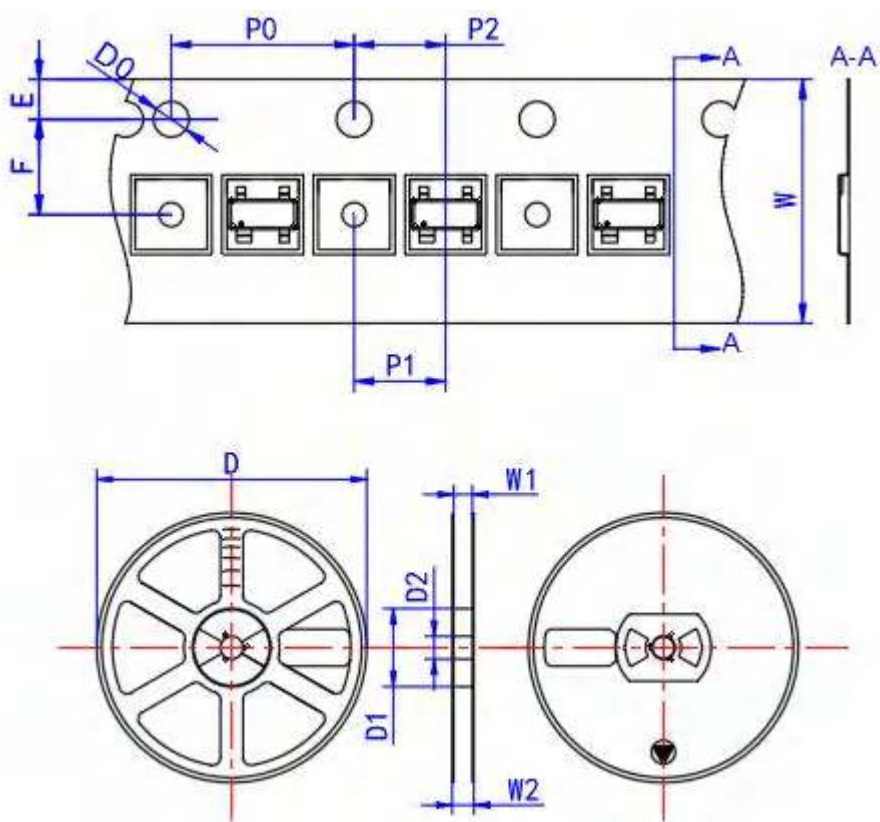
Symbol	Millimeters	
	Min	Max
A	0.8	1.22
A1	0	0.1
A2	0.8	1.0
a	(0.5)	
D	2.8	3.0
E	1.2	1.4
E1	2.2	2.6
e	(1.9)	
e1	(0.2)	
b	0.35	0.5
b1	0.7	0.9
c	0.1	0.2
L	(0.54)	
L1	0.2	0.45
θ	0°	8°

Suggested Land Pattern



Symbol	Dimension	
	Millimeters	Inches
C	2.20	0.087
E1	1.92	0.076
E2	1.72	0.068
G	0.80	0.031
X1	1.00	0.039
X2	1.20	0.047
Y	1.40	0.055
Z	3.60	0.141

Tape & reel specification



Symbol	Dimension in Millimeters
Tape	
D0	1.50+0.10/-0.00
E	1.75±0.10
F	3.50±0.10
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
W	8.00+0.3/-0.1
Reel	
D	178.0±2.00
D1	54.40±1.00
D2	13.00±1.00
W1	9.50±1.00
W2	12.30±1.00

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