

Description

The ASM80R is an uni-directional TVS diode array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. The ASM80R complies with the IEC 61000-4-2 (ESD) with 20kV air and 20kV contact discharge. It is assembled into a lead-free SOT-23 package. It is designed to protect components which are connected to data and transmission lines from voltage surges.

Features

- Protects one or two uni-directional line(s)
- Ultra low leakage: nA level
- Operating voltage: 80V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: 20kV
 - Contact discharge: 20kV
 - IEC61000-4-5 (Lightning) 20A (8/20 μ s)
- RoHS Compliant

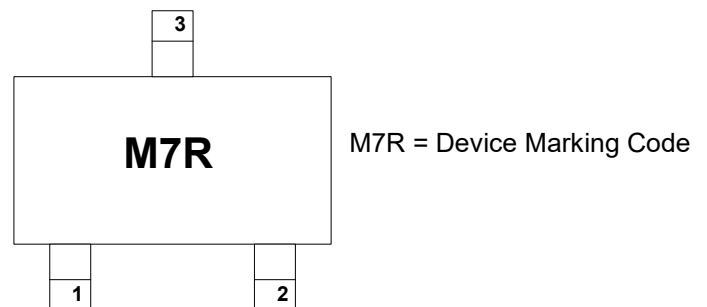
Mechanical Characteristics

- Package: SOT-23
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

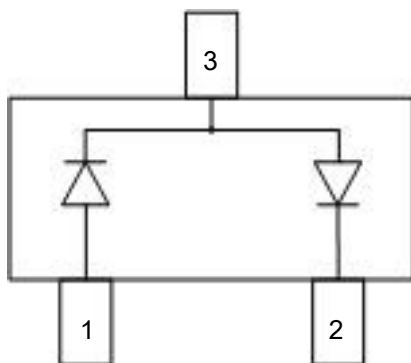
Applications

- Peripherals
- Industrial Equipment
- Notebook Computers
- Portable Instrumentation
- Microprocessor Based Equipment
- Cell Phone Handsets and Accessories
- Personal Digital Assistants (PDAs) and Pagers

Marking Information



Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
ASM80R	3000/Tape & Reel	7 inch

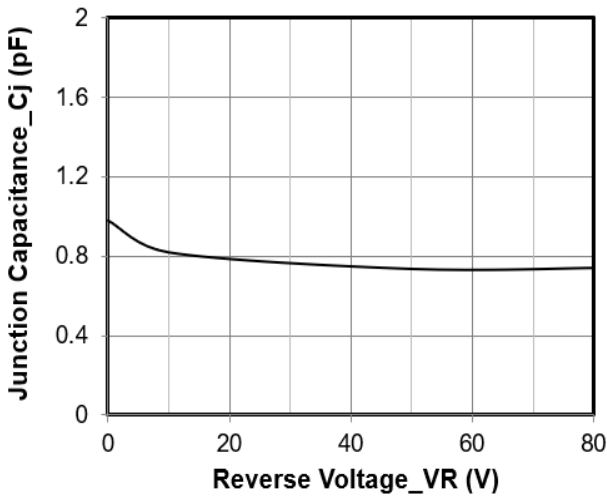
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs), pin1 to pin3 or pin3 to pin2	Ppk	200	W
Peak Pulse Current (8/20 μs), pin1 to pin3 or pin3 to pin2	I _{PP}	20	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	20	kV
ESD per IEC 61000-4-2 (Contact) (pin1 to pin3 or pin3 to pin2)		20	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-65 to +150	$^{\circ}\text{C}$

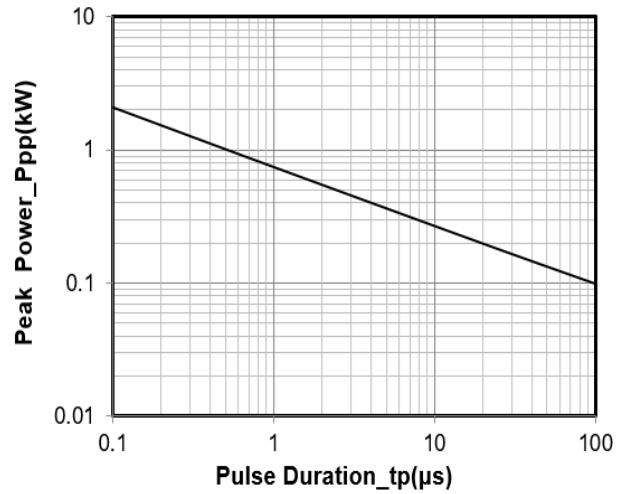
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			80	V	
Reverse Breakdown Voltage	V _{BR}	85			V	I _T = 1mA
Reverse Leakage Current	I _R			0.5	μA	V _R = 70V
Reverse Leakage Current	I _R			0.5	μA	V _R = 80V
Clamping Voltage	V _C			4	V	I _{PP} = 3A (8 x 20 μs pulse), pin1 to pin3 or pin3 to pin2
Clamping Voltage	V _C			7	V	I _{PP} = 10A (8 x 20 μs pulse), pin1 to pin3 or pin3 to pin2
Clamping Voltage	V _C			10	V	I _{PP} = 20A (8 x 20 μs pulse), pin1 to pin3 or pin3 to pin2
Junction Capacitance	C _J		1		pF	V _R = 0V, f = 1MHz

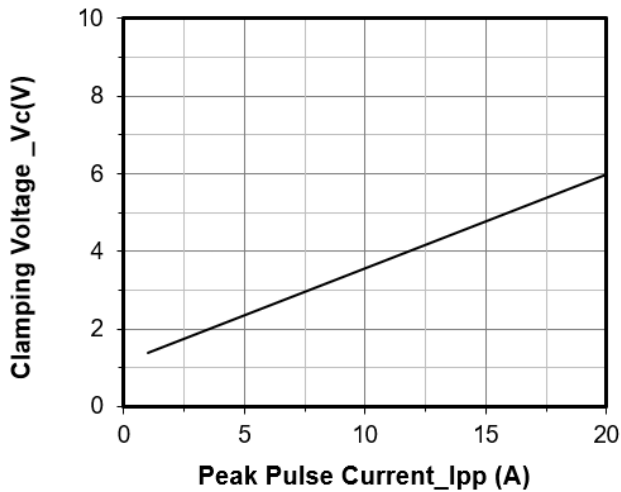
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



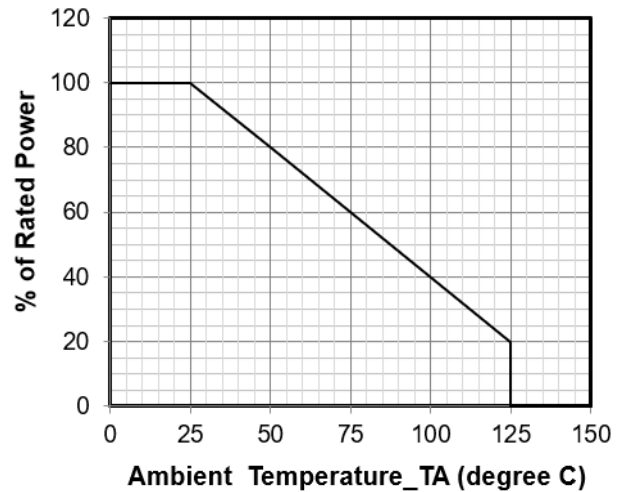
Junction Capacitance vs. Reverse Voltage



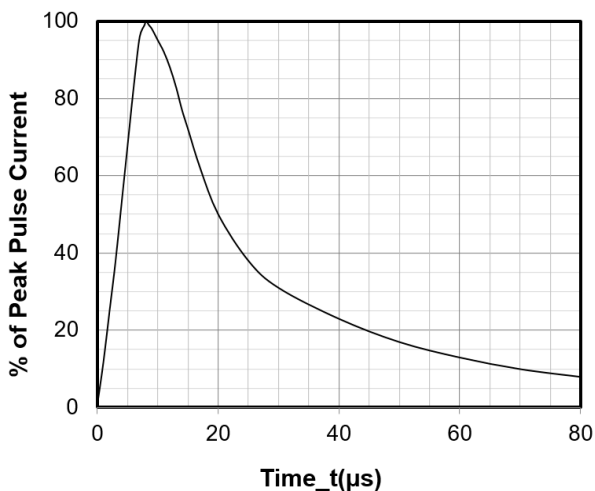
Peak Pulse Power vs. Pulse Time



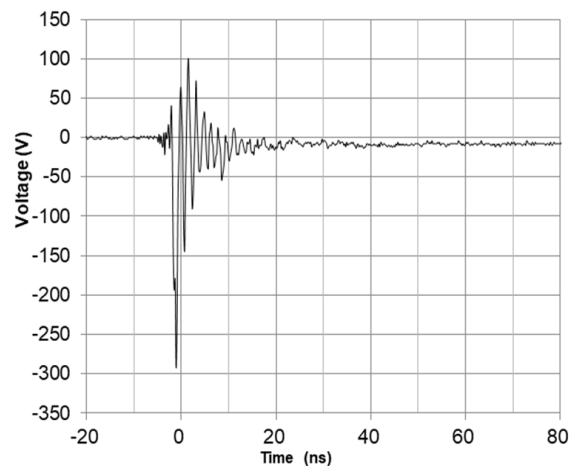
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20\mu\text{s}$)



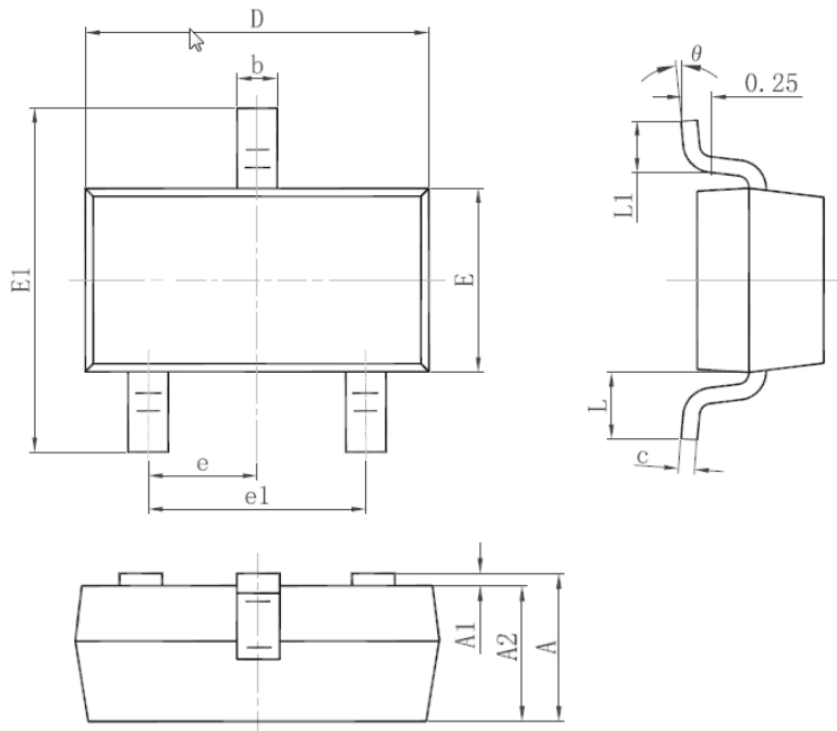
Power Derating Curve



8 X 20 μs Pulse Waveform

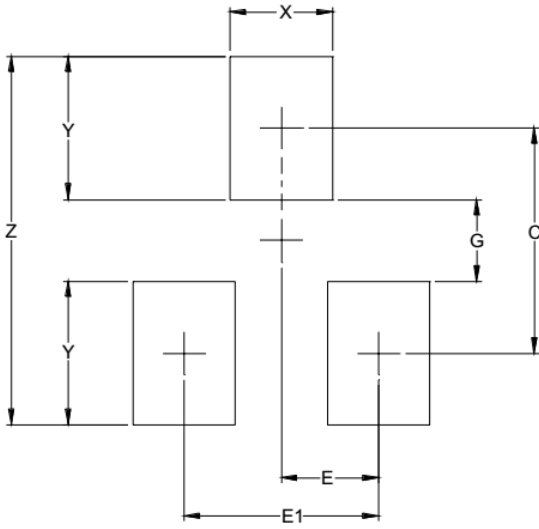


ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

SOT-23 Package Outline Drawing


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	--	1.15	0.035	--	0.045
A1	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.05	0.035	--	0.041
b	0.30	--	0.50	0.012	--	0.020
c	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E1	2.25	--	2.55	0.089		0.100
e	0.95TYP			0.037TYP		
e1	1.80	--	2.00	0.071	--	0.079
L	0.55REF			0.022REF		
L1	0.20	--	0.50	0.008	--	0.020
θ	0°	--	8°	0°	--	8°

Suggested Land Pattern



SYM	DIMENSIONS	
	INCHES	MILLIMETERS
C	.087	2.20
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60

Contact Information

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