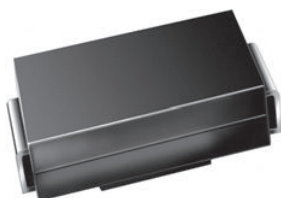


Surface-Mount Schottky Barrier Rectifier


SMA-1 (DO-214AC)

Cathode  Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3 A
V_{RRM}	40 V
I_{FSM}	75 A
V_F at $I_F = 3.0$ A ($T_J = 125$ °C)	0.41 V
T_J max.	150 °C
Package	SMA-1 (DO-214AC)
Circuit configuration	Single

FEATURES

- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code; base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: SMA-1 (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

Polarity: color band denotes the cathode end

M3 and HM3 suffix meet JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	SS3A4	UNIT
Marking device code (SMA-1)		3A4	
Maximum repetitive peak reverse voltage	V_{RRM}	40	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}^{(1)}$	3	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	75	A
Operating junction temperature range	$T_J^{(2)}$	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Notes

⁽¹⁾ Free air, mounted on FR4 PCB, 2 oz., standard footprint

⁽²⁾ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$

ELECTRICAL CHARACTERISTICS ($T_J = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 3.0$ A	$T_J = 25$ °C	$V_F^{(1)}$	0.48	0.51	V
		$T_J = 125$ °C		0.41	-	
Reverse current	$V_R = 40$ V	$T_J = 25$ °C	$I_R^{(2)}$	-	0.2	mA
		$T_J = 125$ °C		13.5	30	
Typical junction capacitance	4.0 V, 1 MHz		C_J	207	-	pF

Notes

⁽¹⁾ Pulse test: 300 μ s pulse width, 1 % duty cycle

⁽²⁾ Pulse test: pulse width ≤ 5 ms

THERMAL - MECHANICAL SPECIFICATIONS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)			
PARAMETER	SYMBOL	TYP.	UNIT
Thermal resistance	$R_{\theta JA}^{(1)(2)}$	102	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(3)}$	10	

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$
(2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint
(3) Thermal resistance junction-to-mount to follow JEDEC® 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION TABLE

Device code	SS	3	A	4	H	M3
	1	2	3	4	5	6
1	Vishay Semiconductors Planar Schottky surface mount product					
2	Current rating (3 = 3 A)					
3	Package type (A = SMA-1)					
4	Voltage rating (4 = 40 V)					
5	Quality grade (H = AEC-Q101 qualified, otherwise = industry grade)					
6	Material / Environmental category (M3 = halogen-free, RoHS-compliant, and termination lead (Pb)-free)					

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS3A4-M3/IA	0.064	IA	7500	13" diameter plastic tape and reel
SS3A4HM3/IA ⁽¹⁾	0.064	IA	7500	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified

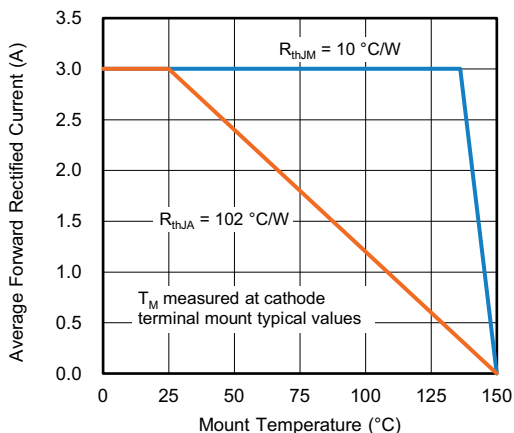
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

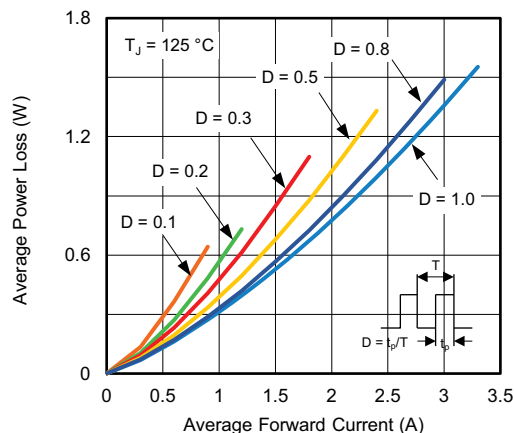


Fig. 2 - Forward Power Loss Characteristics

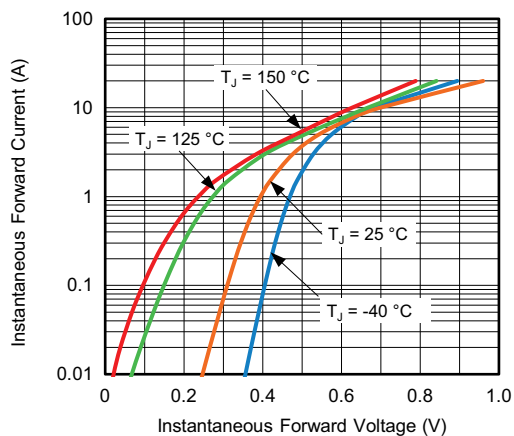


Fig. 3 - Typical Instantaneous Forward Characteristics

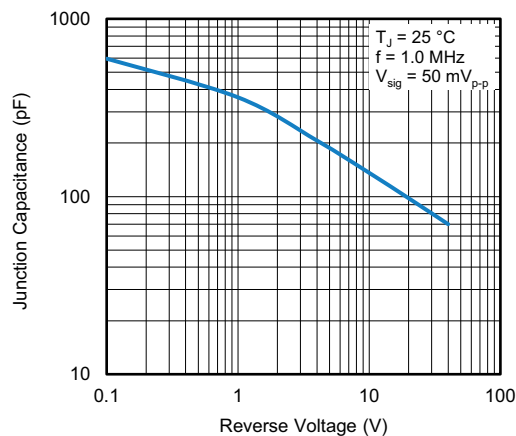


Fig. 5 - Typical Junction Capacitance

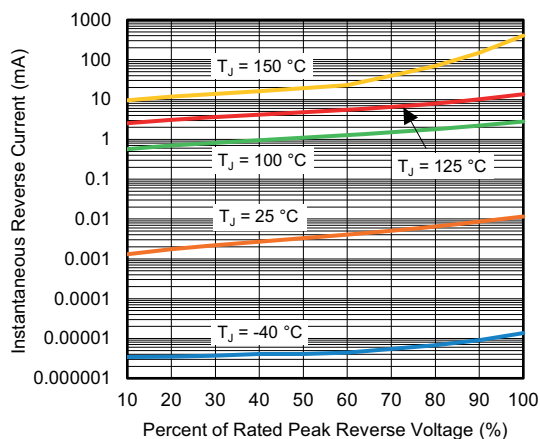


Fig. 4 - Typical Reverse Characteristics

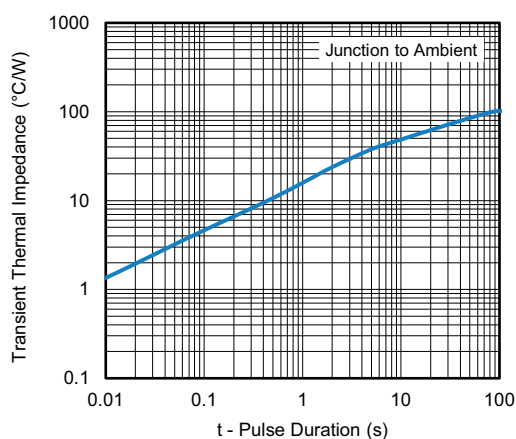


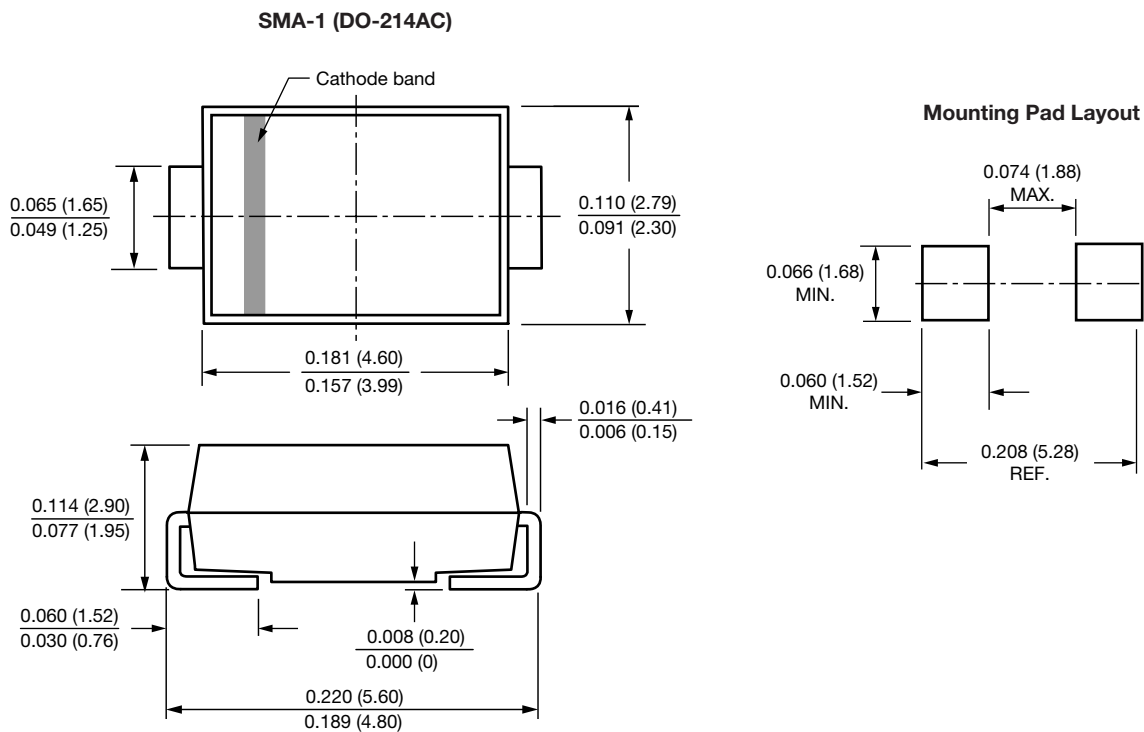
Fig. 6 - Typical Transient Thermal Impedance

LINKS TO RELATED DOCUMENTS

Dimensions	www.vishay.com/doc?97292
Part marking information	www.vishay.com/doc?98657
Packaging information	www.vishay.com/doc?98659

SMA-1 (DO-214AC)

DIMENSIONS in inches (millimeters)





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