



Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Very low switching losses
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	90 V
I_{FSM}	40 A
V_F	0.75 V
$T_J \text{ max.}$	150 °C

TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters, and reverse battery protection.

MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

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

M3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes the cathode end

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	BYS12-90	UNIT
Device marking code		BYS 209	
Maximum repetitive peak reverse voltage	V_{RRM}	90	V
Maximum average forward rectified current	$I_{F(AV)}$	1.5	A
Peak forward surge current single half sine-wave superimposed on rated load	I_{FSM}	40	A
		30	
Voltage rate of change (rated V_R)	dV/dt	10 000	V/ μ s
Junction and storage temperature range	T_J, T_{STG}	- 55 to + 150	°C

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

PARAMETER	TEST CONDITIONS	SYMBOL	BYS12-90	UNIT
Maximum instantaneous forward voltage	$I_F = 1.0\text{ A}$	$V_F^{(1)}$	750	mV
	$I_F = 15\text{ mA}$		360	
Maximum DC reverse current	V_{RRM}	$T_J = 25\text{ }^{\circ}\text{C}$	100	μA
		$T_J = 100\text{ }^{\circ}\text{C}$	1	mA

Note

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

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

PARAMETER	SYMBOL	BYS12-90	UNIT
Maximum thermal resistance, junction to lead	$R_{\theta JL}$	25	$^{\circ}\text{C/W}$
Maximum thermal resistance, junction to ambient	$R_{\theta JA}^{(1)}$	150	$^{\circ}\text{C/W}$
	$R_{\theta JA}^{(2)}$	125	
	$R_{\theta JA}^{(3)}$	100	

Notes

(1) Mounted on epoxy-glass hard tissue

(2) Mounted on epoxy-glass hard tissue, 50 mm² 35 μm Cu

(3) Mounted on Al-oxide-ceramic (Al_2O_3), 50 mm² 35 μm Cu

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BYS12-90-M3/TR	0.064	61T	1800	7" diameter plastic tape and reel
BYS12-90-M3/TR3	0.064	5AT	7500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

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

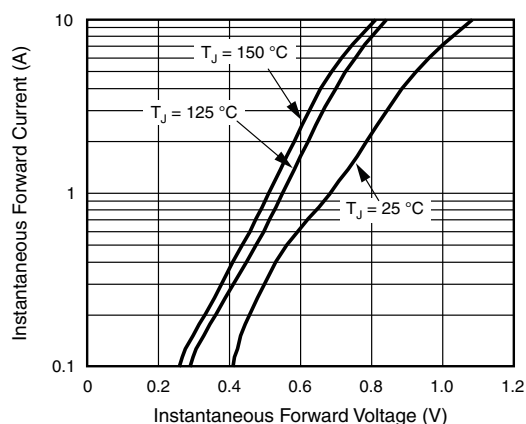


Fig. 1 - Forward Current vs. Forward Voltage

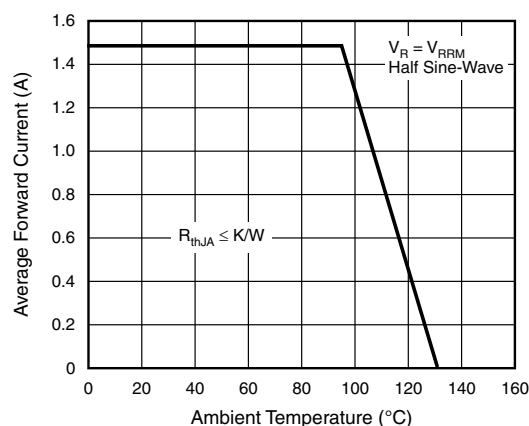


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

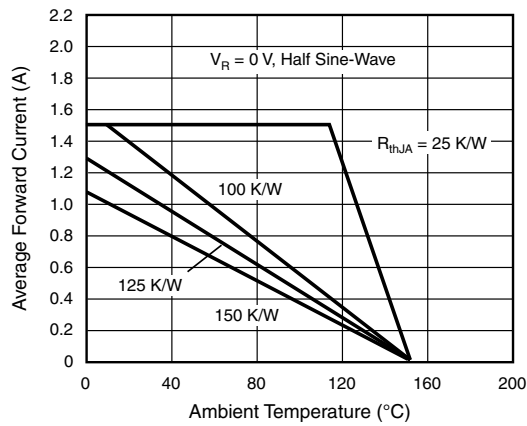


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

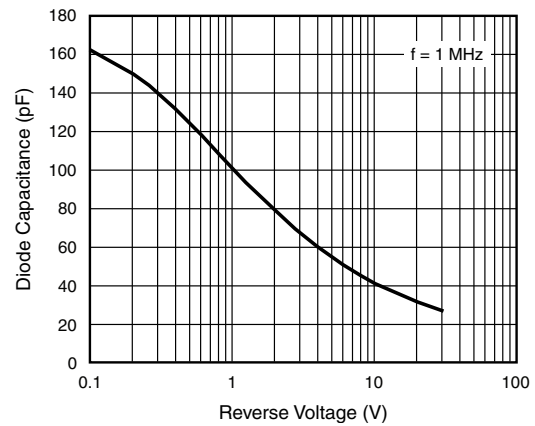


Fig. 6 - Diode Capacitance vs. Reverse Voltage

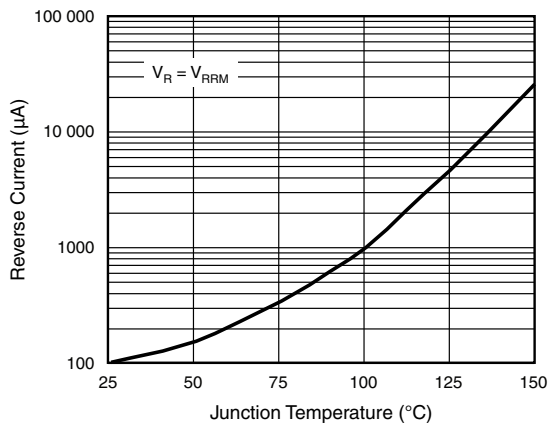


Fig. 4 - Reverse Current vs. Junction Temperature

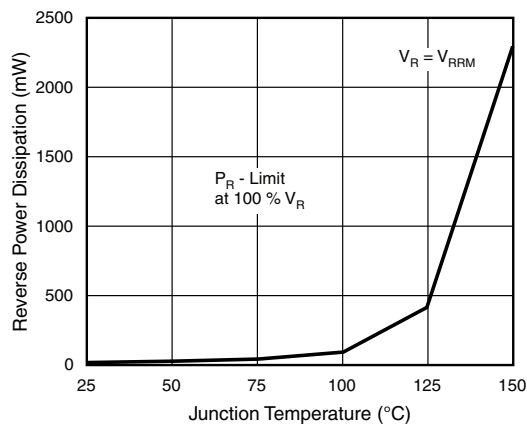
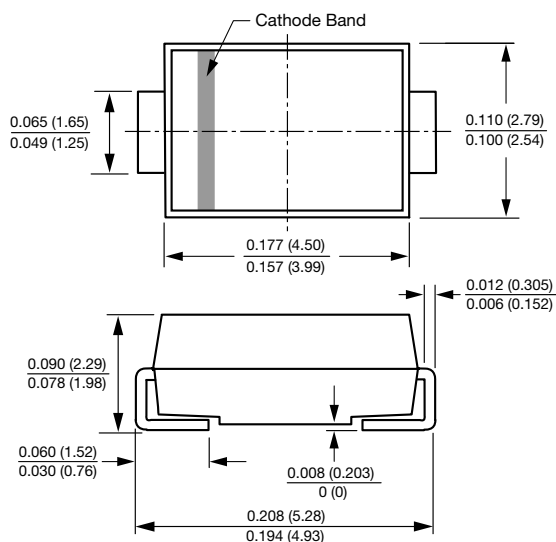
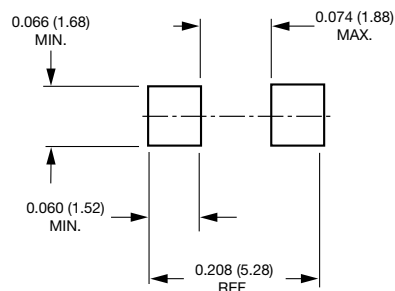


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)
DO-214AC (SMA)



Mounting Pad Layout





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