20A, 100V - 200V Schottky Barrier Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for overvoltage protection
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free

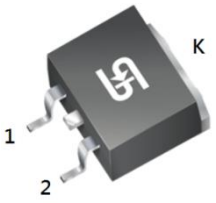
KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	20	A
V_{RRM}	100 - 200	V
I_{FSM}	150	A
$T_{J\ MAX}$	175	°C
Package	TO-263AB (D^2PAK)	
Configuration	Dual dies	

APPLICATIONS

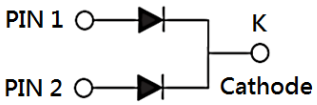
- Low voltage, high freq. inverter
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

MECHANICAL DATA

- Case: TO-263AB (D^2PAK)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.40g (approximately)



TO-263AB (D^2PAK)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MBRS 20H100CTH**	**MBRS 20H150CTH**	**MBRS 20H200CTH**	**UNIT**
Repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	105	140	V
Forward current	I_F	20			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150			A
Peak repetitive forward current (Rated V_R, Square wave, 20KHz)	I_{FRM}	20			A
Peak repetitive reverse surge current(1)	I_{RRM}	1	0.5		A
Critical rate of rise of off-state voltage	dv/dt	10,000			V/μs
Junction temperature	T_J	-55 to +175			°C
Storage temperature	T_{STG}	-55 to +175			°C

Notes:

1. tp = 2.0μs, 1.0KHz

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THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\Theta JC}$	1.5	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode (1)	MBRS20H100CTH	I_F = 10A, T_J = 25°C	V_F	-	0.85	V
	MBRS20H150CTH MBRS20H200CTH			-	0.88	V
	MBRS20H100CTH	I_F = 20A, T_J = 25°C		-	0.95	V
	MBRS20H150CTH MBRS20H200CTH			-	0.97	V
	MBRS20H100CTH	I_F = 10A, T_J = 125°C		-	0.75	V
	MBRS20H150CTH MBRS20H200CTH			-	0.75	V
	MBRS20H100CTH	I_F = 20A, T_J = 125°C		-	0.85	V
	MBRS20H150CTH MBRS20H200CTH			-	0.85	V
Reverse current @ rated V_R per diode (2)		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	2	mA

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING	DEVICE MARKING
MBRS20H100CTH	TO-263AB (D^2PAK)	800 / Tape & Reel	MBRS20H100CT
MBRS20H150CTH	TO-263AB (D^2PAK)	800 / Tape & Reel	MBRS20H150CT
MBRS20H200CTH	TO-263AB (D^2PAK)	800 / Tape & Reel	MBRS20H200CT

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CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

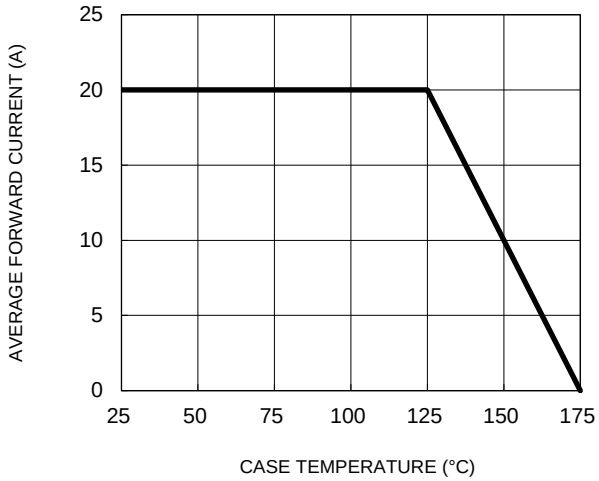


Fig.2 Typical Junction Capacitance

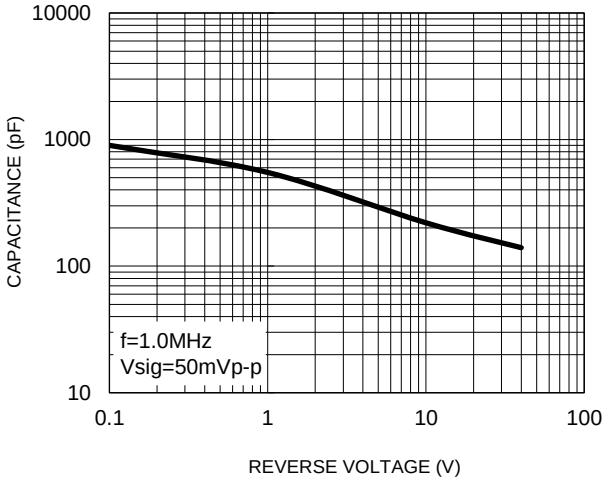


Fig.3 Typical Reverse Characteristics

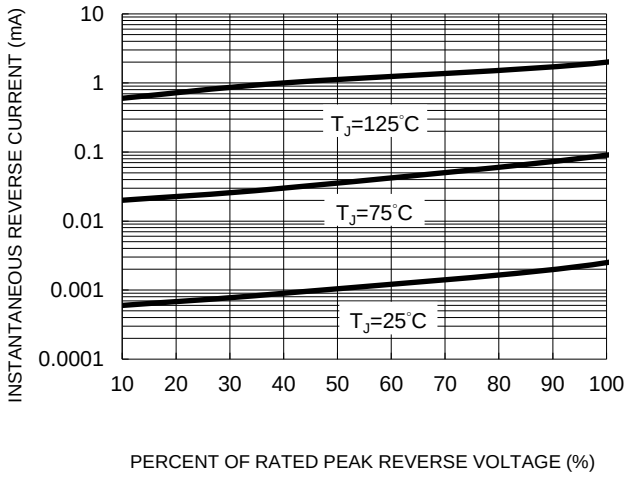


Fig.4 Typical Forward Characteristics

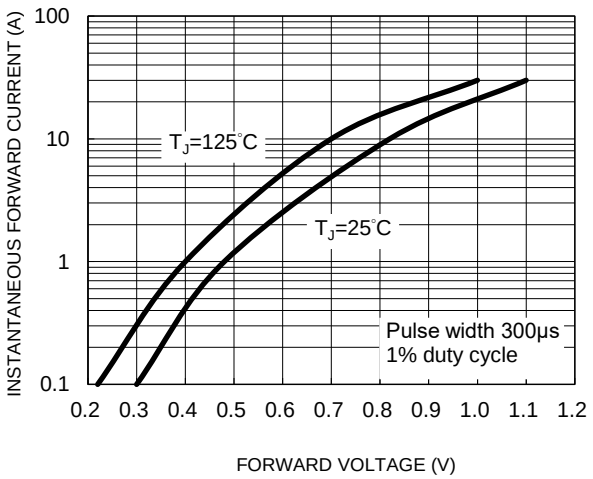
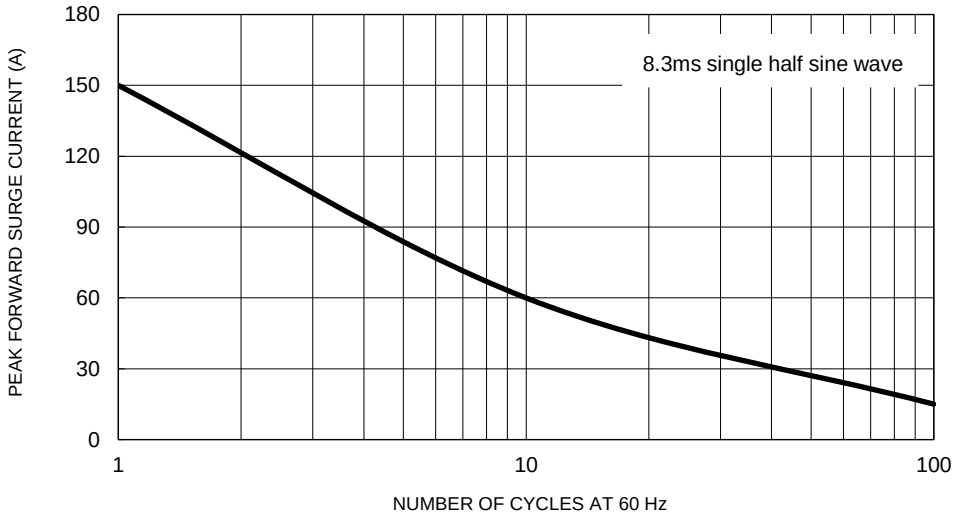


Fig.5 Maximum Non-Repetitive Forward Surge Current



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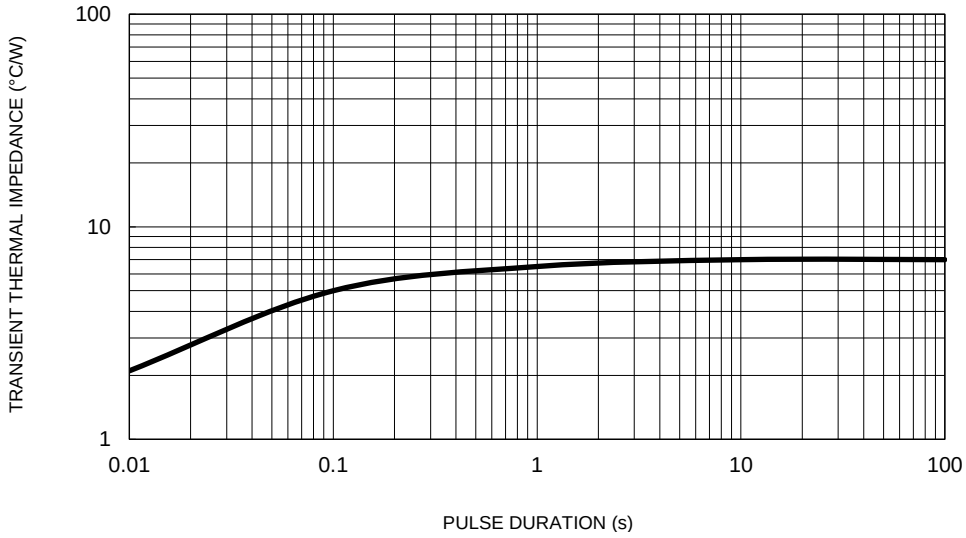
CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



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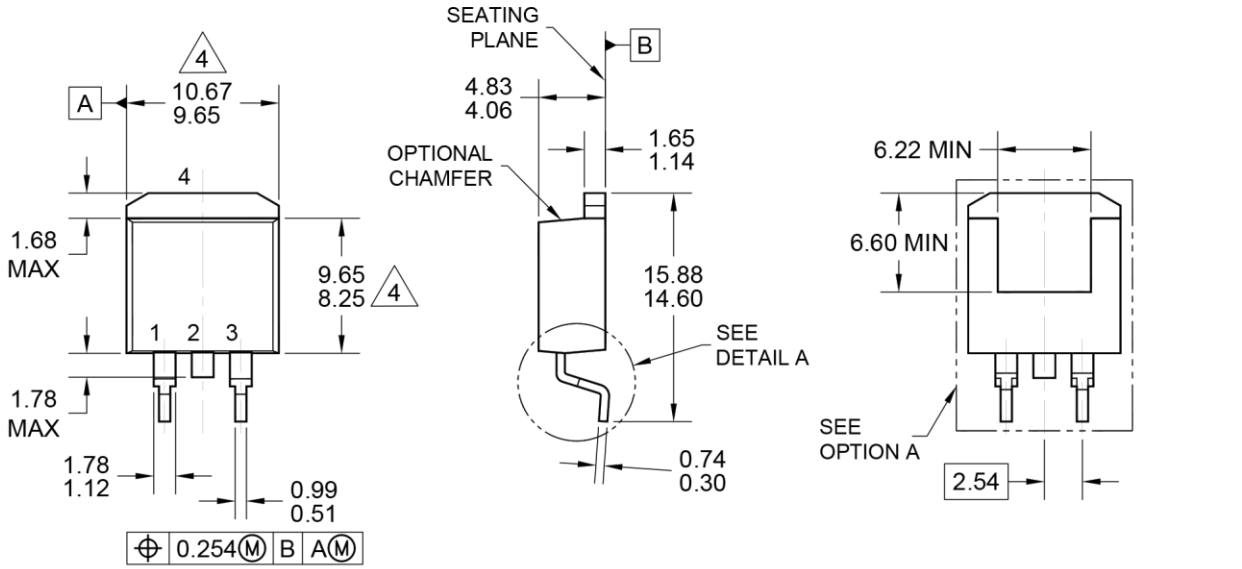
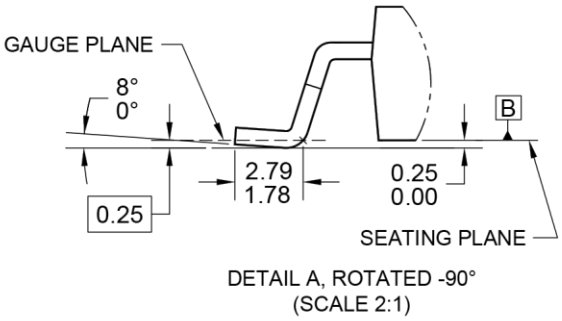
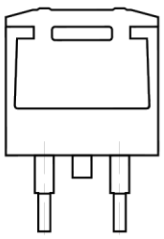
PACKAGE OUTLINE DIMENSIONS

TO-263AB (D2PAK)

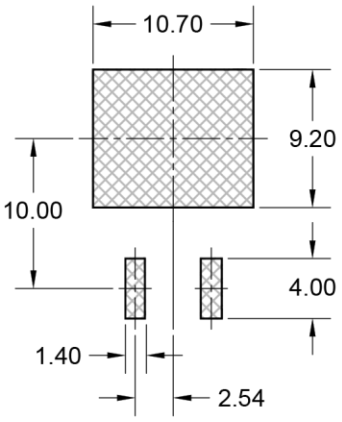




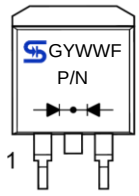
DETAIL A, ROTATED -90°
(SCALE 2:1)



OPTION A



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = Device marking
G = Green compound
YWW = Date code
F = Factory code

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. THE PACKAGE OUTLINE REFERENCE: JEDEC TO-263, VARIATION AB, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DWG NO REF: HQ2SD07-TO263AB-008 REV A.

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