

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

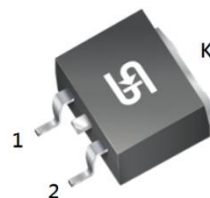
APPLICATIONS

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

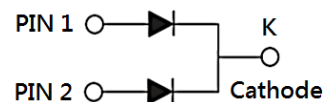
MECHANICAL DATA

- Case: TO-263AB (D²PAK)
- 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)

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



TO-263AB (D²PAK)



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

PARAMETER	SYMBOL	MBRS 20H100CT H	MBRS 20H150CT H	MBRS 20H200CT H	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. $t_p = 2.0\mu\text{s}$, 1.0KHz

THERMAL PERFORMANCE

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

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	MBRS20H100CTH	V_F	-	0.85	V
	MBRS20H150CTH		-	0.88	V
	MBRS20H200CTH		-	0.95	V
	MBRS20H100CTH		-	0.97	V
	MBRS20H150CTH		-	0.75	V
	MBRS20H200CTH		-	0.75	V
	MBRS20H100CTH		-	0.85	V
	MBRS20H150CTH		-	0.85	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^\circ\text{C}$	I_R	-	5	μA
	$T_J = 125^\circ\text{C}$		-	2	mA

Notes:

1. Pulse test with $PW = 0.3\text{ms}$
2. Pulse test with $PW = 30\text{ms}$

ORDERING INFORMATION

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

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

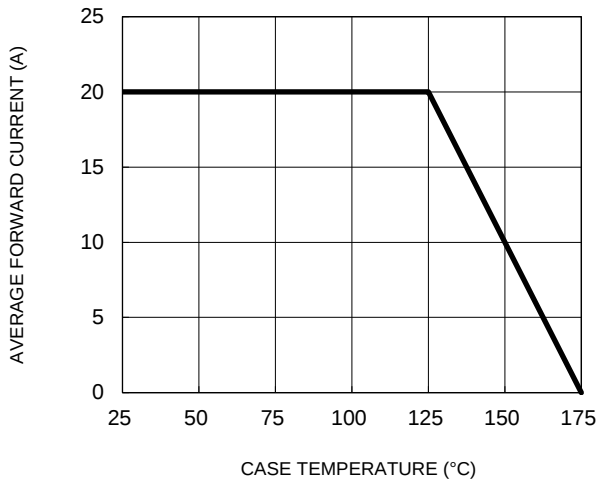


Fig.2 Typical Junction Capacitance

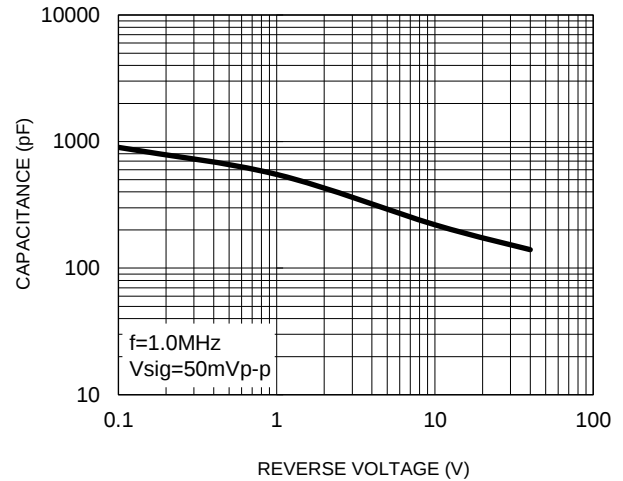


Fig.3 Typical Reverse Characteristics

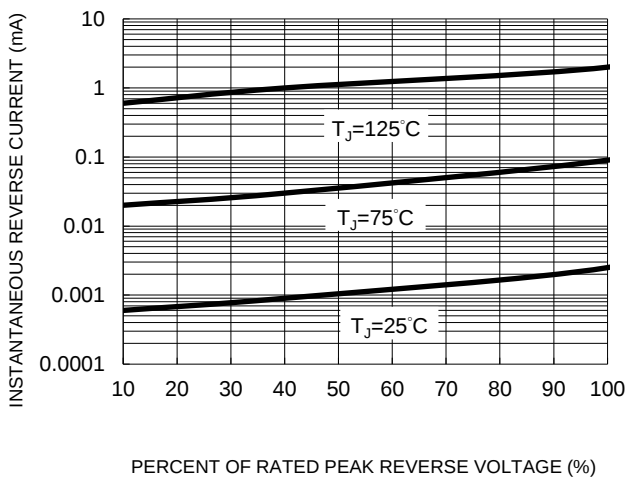


Fig.4 Typical Forward Characteristics

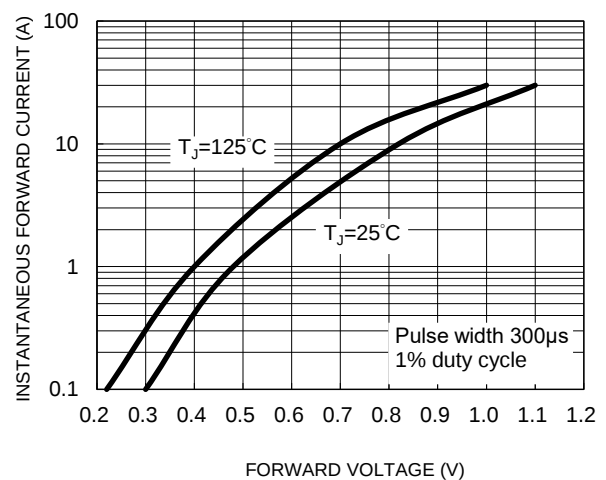
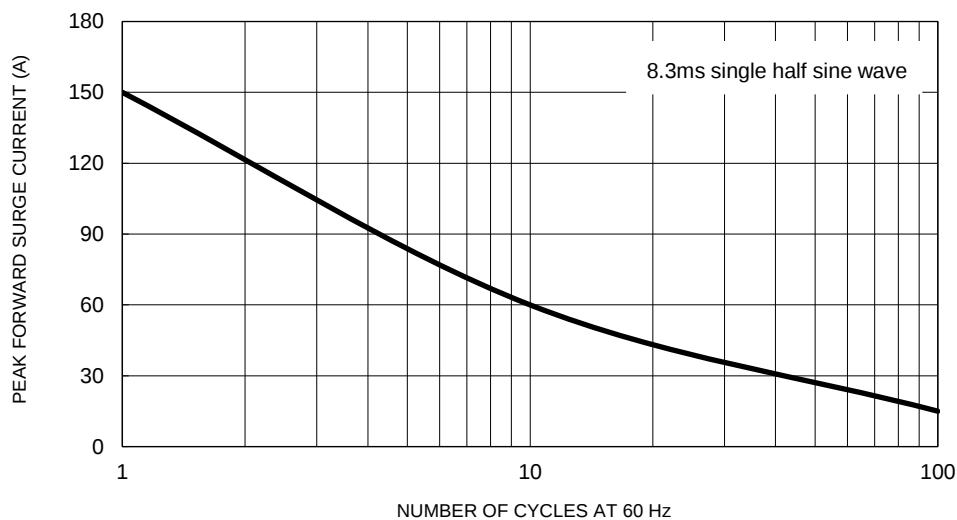


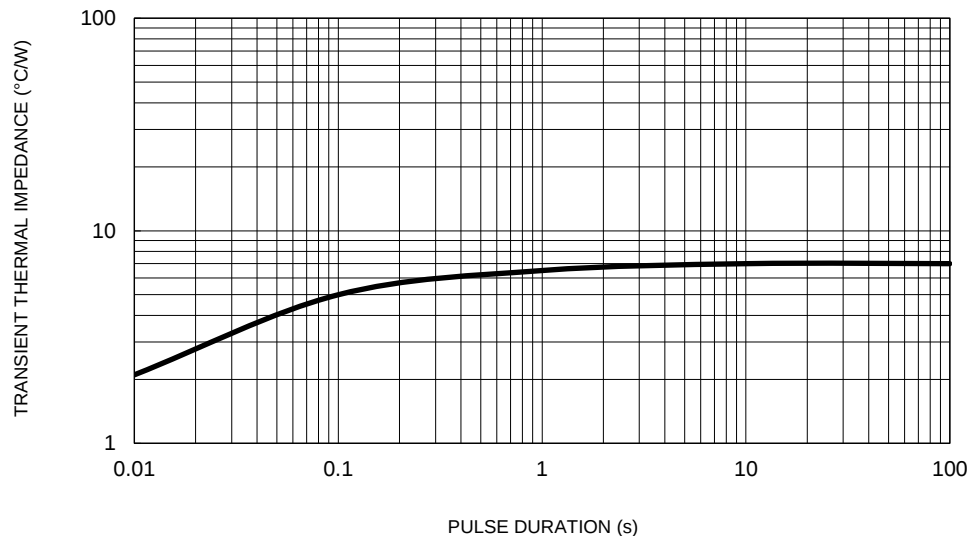
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

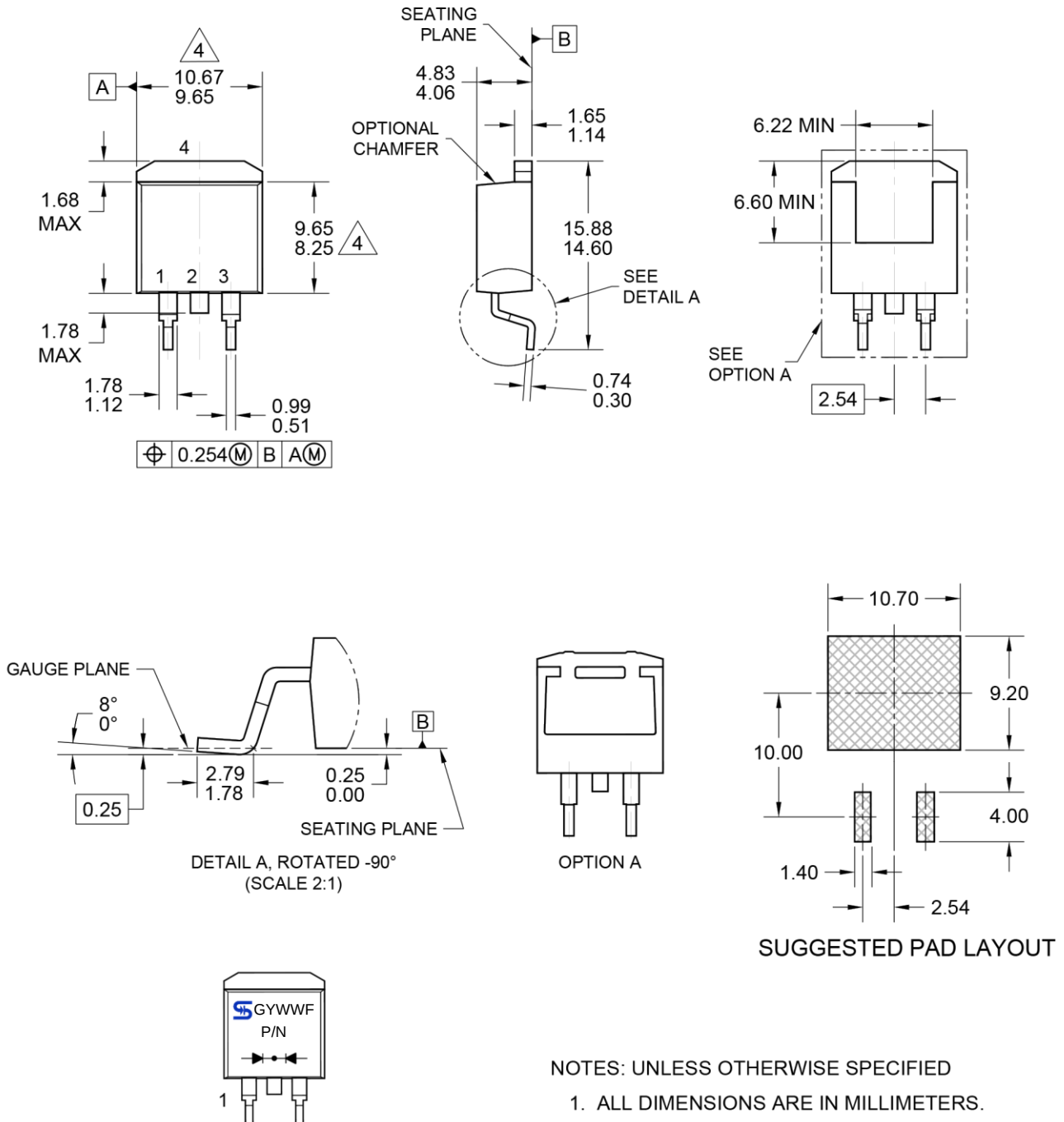
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

TO-263AB (D2PAK)



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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