20A, 150V Schottky Barrier Surface Mount Rectifier

FEATURES

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

APPLICATIONS

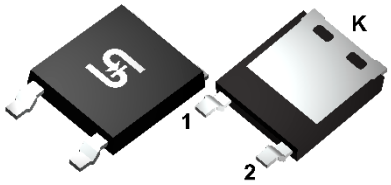
- Low voltage, high frequency, inverter
- DC/DC converter
- Freewheeling diodes
- Reverse battery protection
- Car lighting

MECHANICAL DATA

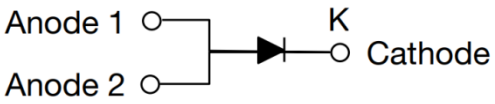
- Case: ThinDPAK
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.196g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	20	A
V_{RRM}	150	V
I_{FSM}	330	A
$T_{J\ MAX}$	150	°C
Package	ThinDPAK	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE ThinDPAK®



ThinDPAK



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**MBRAD20150H**	**UNIT**
Marking code on the device			20150	
Repetitive peak reverse voltage		V_{RRM}	150	V
Reverse voltage, total rms value		$V_{R(RMS)}$	105	V
Forward current		I_F	20	A
Surge peak forward current single half sine-wave superimposed on rated load	t = 8.3ms	I_{FSM}	330	A
	t = 1.0ms		680	A
Junction temperature		T_J	-55 to +150	°C
Storage temperature		T_{STG}	-55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance(1)	$R_{\Theta JL}$	2.0	°C/W
Junction-to-ambient thermal resistance(2)	$R_{\Theta JA}$	11.5	°C/W
Junction-to-case thermal resistance(2)	$R_{\Theta JC}$	2.5	°C/W

Notes:
1. With ideal heat sink
2. Units mounted on 2" x 3" x 0.25" Al-plate

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

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	I_F = 10A, T_J = 25°C	V_F	0.79	-	V
	I_F = 20A, T_J = 25°C		0.87	0.90	V
	I_F = 10A, T_J = 125°C		0.65	-	V
	I_F = 20A, T_J = 125°C		0.75	0.78	V
Reverse current @ rated V_R(2)	T_J = 25°C	I_R	-	10	μA
	T_J = 125°C		-	5	mA
Junction capacitance	1MHz, V_R = 4.0V	C_J	389	-	pF

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

ORDERING INFORMATION

ORDERING CODE	PACKAGE	PACKING
MBRAD20150H	ThinDPAK	4,500 / Tape & Reel

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

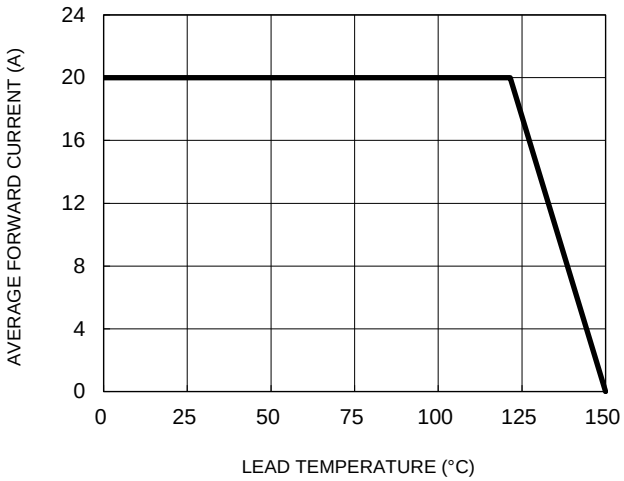


Fig.2 Typical Junction Capacitance

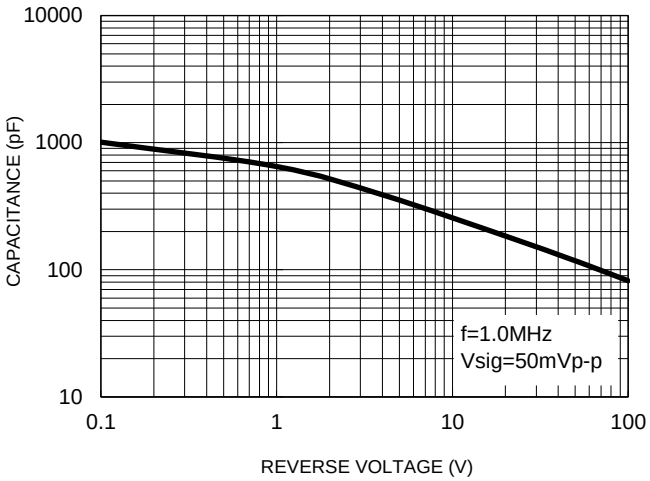


Fig.3 Typical Reverse Characteristics

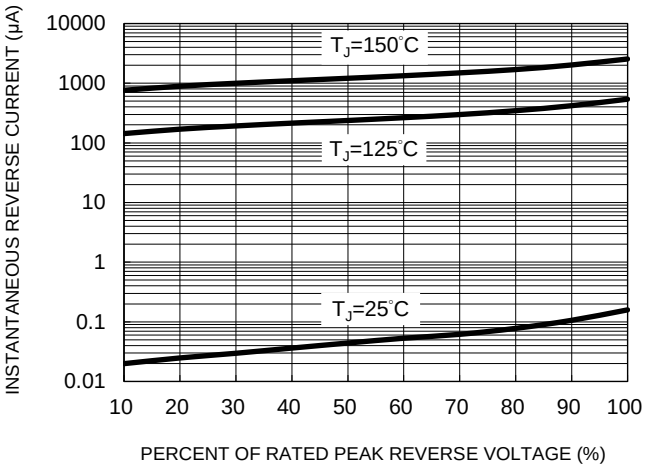


Fig.4 Typical Forward Characteristics

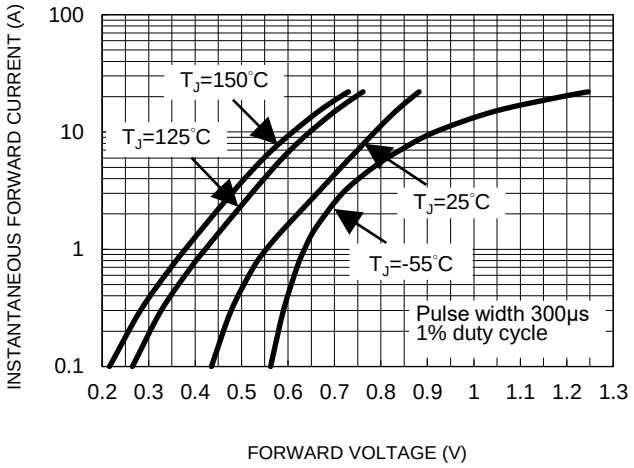
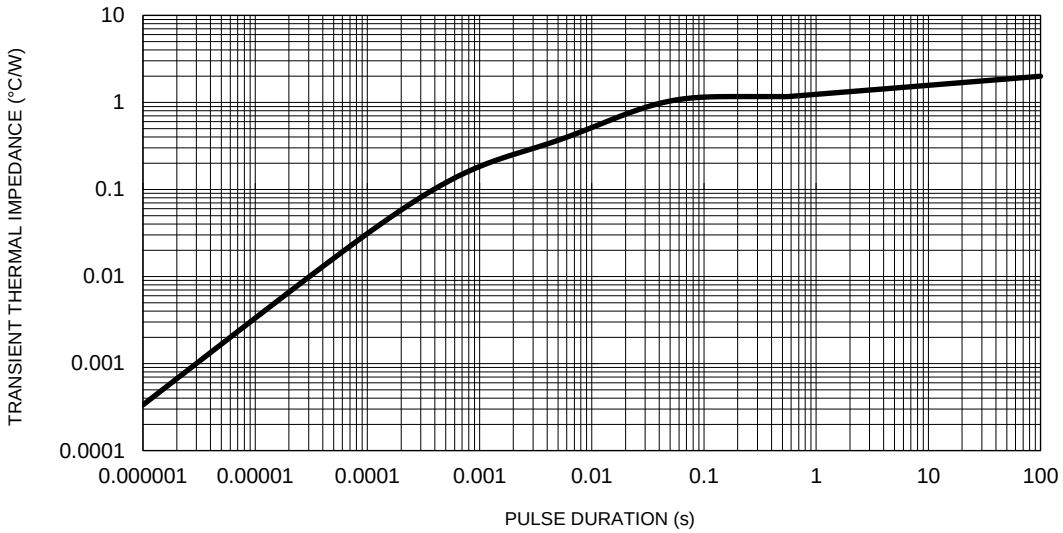
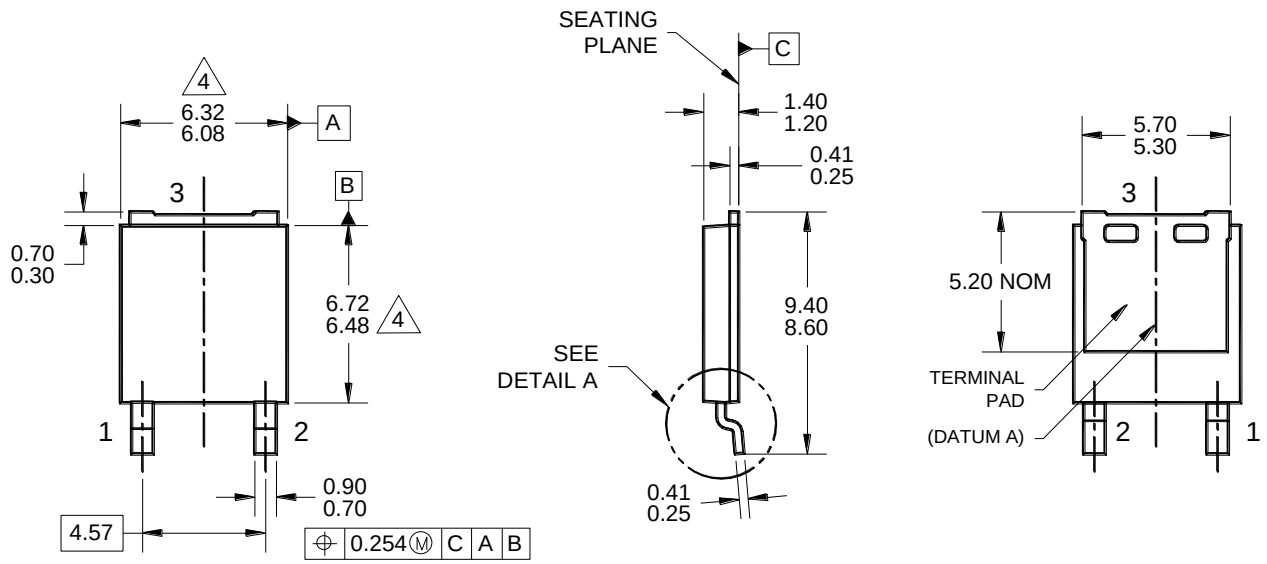


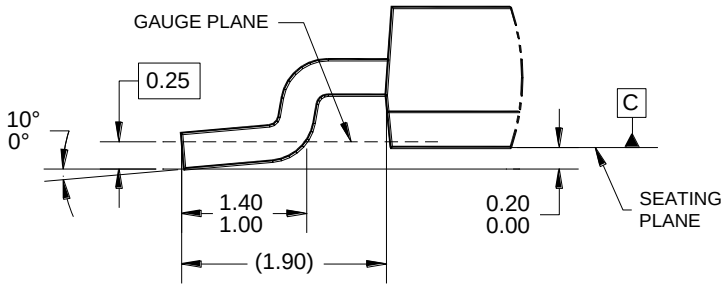
Fig.5 Typical Transient Thermal Impedance



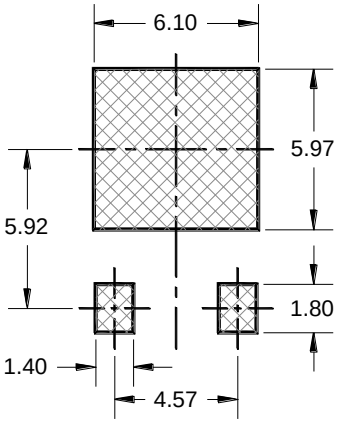
PACKAGE OUTLINE DIMENSIONS

ThinDPAK

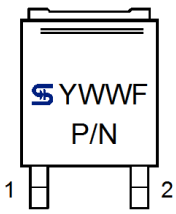




DETAIL A, ROTATED -90°
(SCALE 4:1)



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

YWW	=	DATE CODE
F	=	FACTORY CODE
P/N	=	MARKING CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: JEDEC TO-252, VARIATION AE, ISSUE F.
4. MOLDED PLASTIC BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSION, OR GATE BURRS.
5. DWG NO. REF: HQ2SD07-TDPAK-065 REV A.

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