

## 40A, 60V 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 according to IEC 61249-2-21

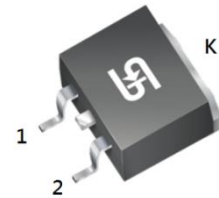
### APPLICATIONS

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

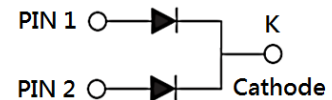
### MECHANICAL DATA

- Case: TO-263AB (D<sup>2</sup>PAK)
- 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: 1.53g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	40	A
$V_{RRM}$	60	V
$I_{FSM}$	300	A
$T_{J\ MAX}$	175	°C
Package	TO-263AB (D <sup>2</sup> PAK)	
Configuration	Dual dies	



**TO-263AB (D<sup>2</sup>PAK)**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	MBRS4060CTH	UNIT
Marking code on the device		MBRS4060CT	
Repetitive peak reverse voltage	$V_{RRM}$	60	V
Reverse voltage, total rms value	$V_{R(RMS)}$	42	V
Forward current	$I_F$	40	A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	300	A
Critical rate of rise of off-state voltage	dv/dt	10,000	V/ $\mu\text{s}$
Junction temperature	$T_J$	-55 to +175	°C
Storage temperature	$T_{STG}$	-55 to +175	°C

**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 <sup>(1)</sup>	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$	$V_F$	-	0.80	V
	$I_F = 40\text{A}, T_J = 25^\circ\text{C}$		-	1.00	V
	$I_F = 20\text{A}, T_J = 125^\circ\text{C}$		-	0.70	V
	$I_F = 40\text{A}, T_J = 125^\circ\text{C}$		-	0.90	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ\text{C}$	$I_R$	-	100	$\mu\text{A}$
	$T_J = 125^\circ\text{C}$		-	20	mA

**Notes:**

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

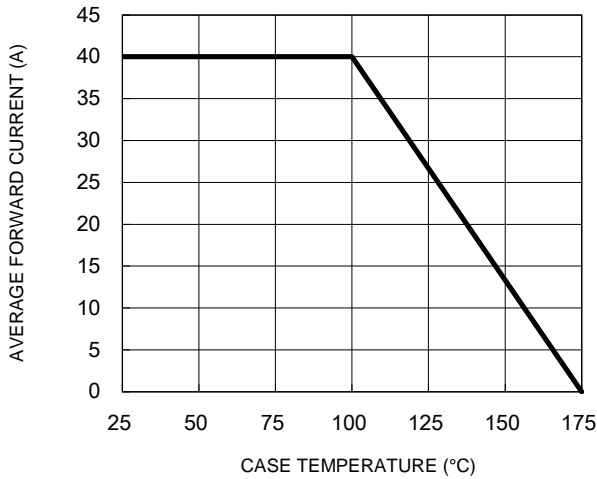
**ORDERING INFORMATION**

ORDERING CODE	PACKAGE	PACKING
MBRS4060CTH	TO-263AB (D <sup>2</sup> PAK)	800 / Tape & Reel

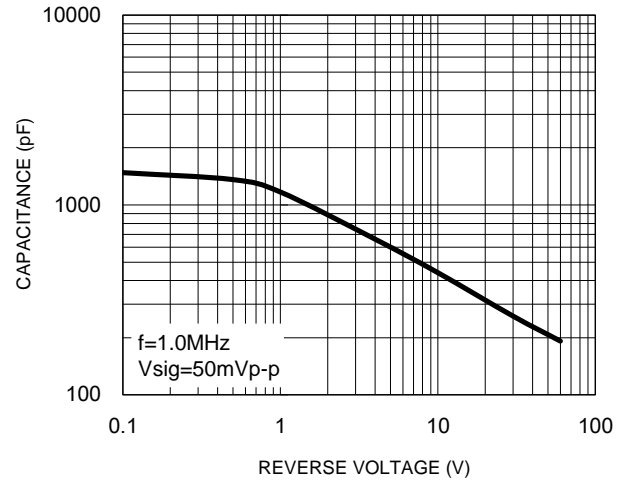
## CHARACTERISTICS CURVES

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

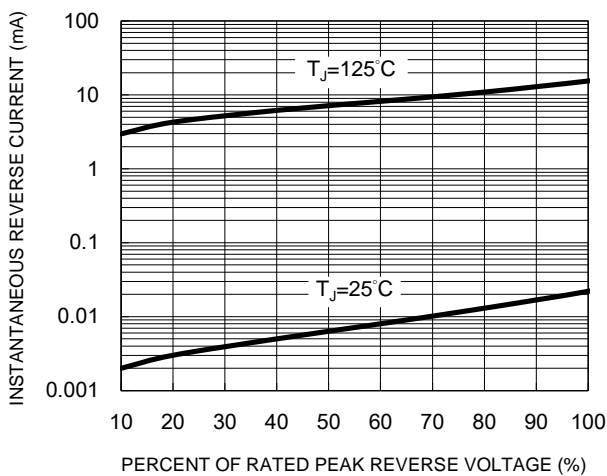
**Fig.1 Forward Current Derating Curve**



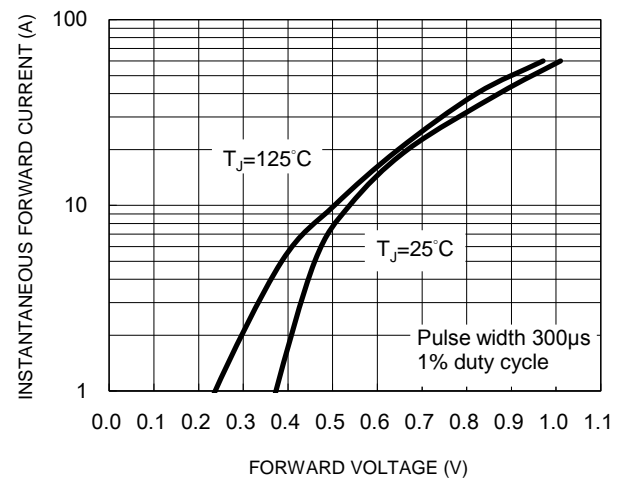
**Fig.2 Typical Junction Capacitance**



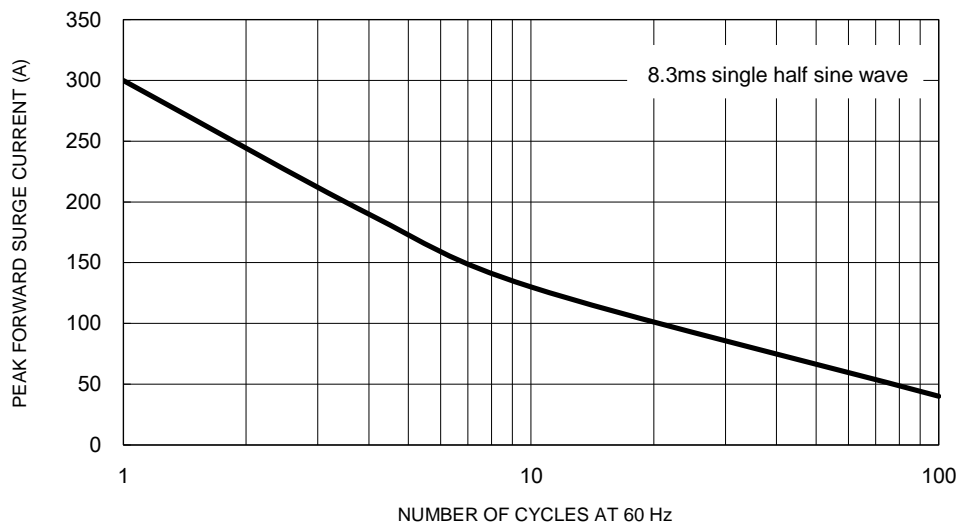
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



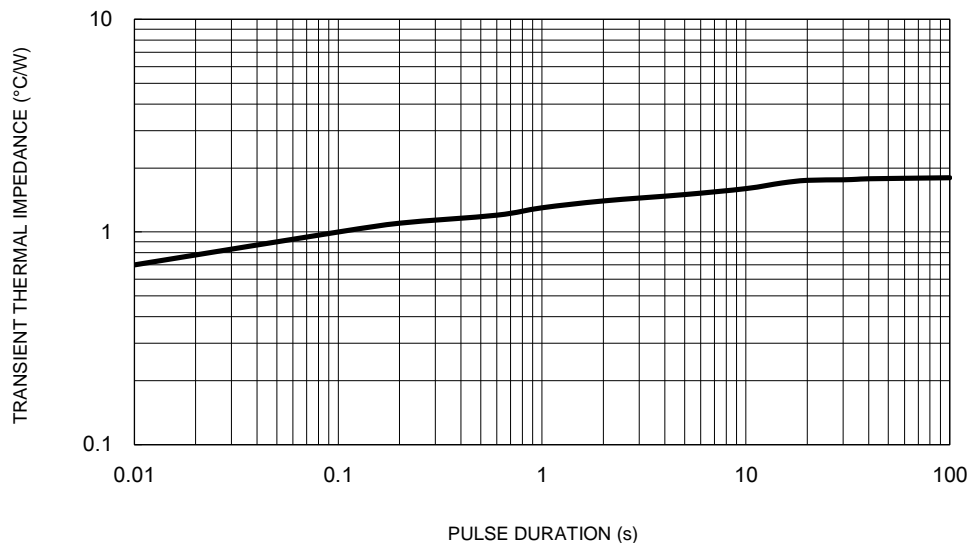
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



## CHARACTERISTICS CURVES

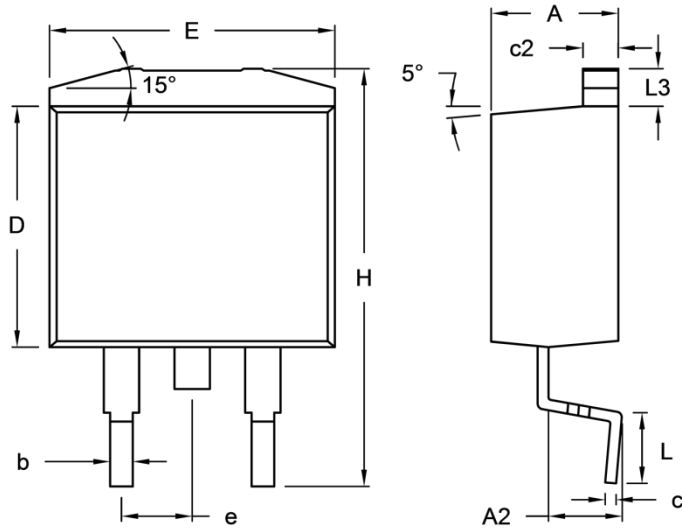
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.6 Typical Transient Thermal Impedance**



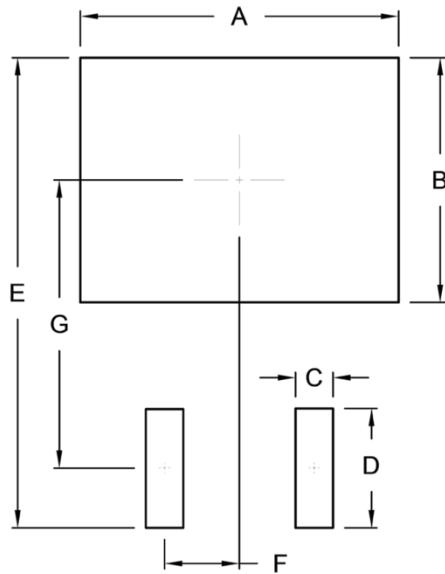
## PACKAGE OUTLINE DIMENSIONS

TO-263AB (D<sup>2</sup>PAK)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.44	4.70	0.175	0.185
A2	2.03	2.79	0.080	0.110
b	0.68	0.94	0.027	0.037
c	0.36	0.53	0.014	0.021
c2	1.14	1.40	0.045	0.055
D	8.25	9.25	0.325	0.364
E	-	10.50	-	0.413
e	2.41	2.67	0.095	0.105
H	14.60	15.88	0.575	0.625
L	2.29	2.79	0.090	0.110
L3	1.14	1.40	0.045	0.055

## SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	10.80	0.425
B	8.30	0.327
C	1.27	0.050
D	4.05	0.159
E	15.95	0.628
F	2.54	0.100
G	9.775	0.385

## MARKING DIAGRAM



P/N = Marking Code  
G = Green Compound  
YWW = Date Code  
F = Factory Code

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