

30A, 45V Schottky Barrier Surface Mount Rectifier

FEATURES

- 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

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

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	30	Α	
V_{RRM}	45	V	
I _{FSM}	220	Α	
T_{JMAX}	150	°C	
Package	TO-263AB (D ² PAK)		
Configuration	Dual dies		

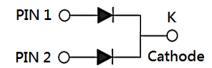








TO-263AB (D²PAK)



PARAMETER	SYMBOL	MBRS3045CT	UNIT
Marking code on the device		MBRS3045CT	
Repetitive peak reverse voltage	V _{RRM}	45	V
Reverse voltage, total rms value	V _{R(RMS)}	31	V
Forward current	I _F	30	А
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I _{FSM}	220	А
Critical rate of rise of off-state voltage	dv/dt	10,000	V/µs
Junction temperature	TJ	-55 to +150	°C
Storage temperature	T _{STG}	-55 to +150	°C

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MBRS3045CT Taiwan Semiconductor

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-ambient thermal resistance	R _{OJA}	50	°C/W
Junction-to-case thermal resistance	R _{eJC}	1.5	°C/W

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 15A, T_J = 25^{\circ}C$	V _F	-	0.70	V
	$I_F = 30A, T_J = 25^{\circ}C$		-	0.90	V
	I _F = 15A, T _J = 125°C		-	0.60	V
	I _F = 30A, T _J = 125°C		-	0.75	V
Reverse current @ rated V _R per diode ⁽²⁾	T _J = 25°C	1	-	200	μΑ
	T _J = 125°C	l _R	-	15	mA

Notes:

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

ORDERING INFORMATION			
ORDERING CODE	PACKAGE	PACKING	
MBRS3045CT	TO-263AB (D ² PAK)	800 / Tape & Reel	



CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

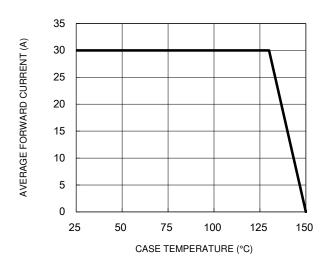


Fig.2 Typical Junction Capacitance

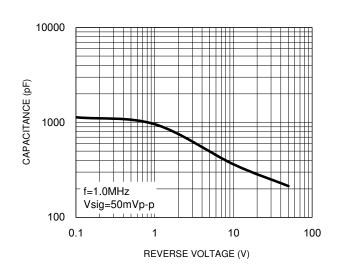
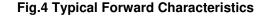
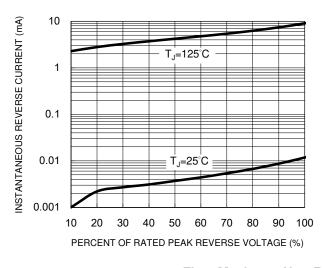


Fig.3 Typical Reverse Characteristics





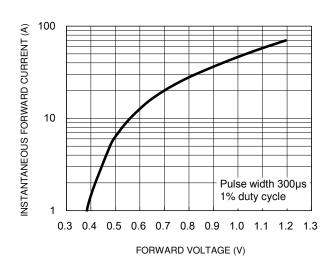
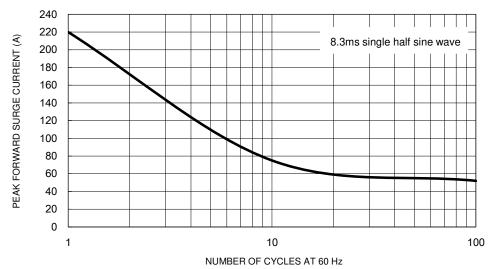


Fig.5 Maximum Non-Repetitive Forward Surge Current



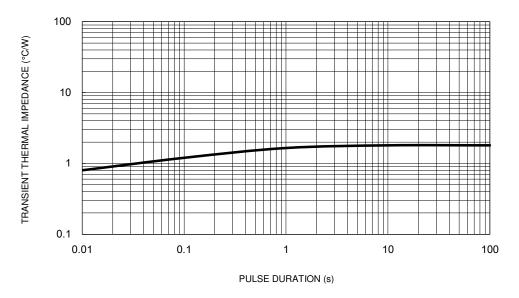
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CHARACTERISTICS CURVES

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

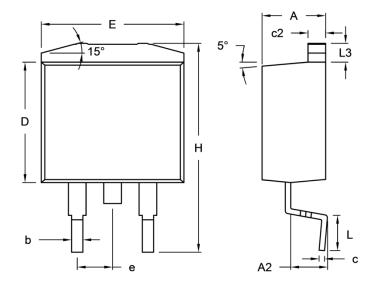
Fig.6 Typical Transient Thermal Impedance





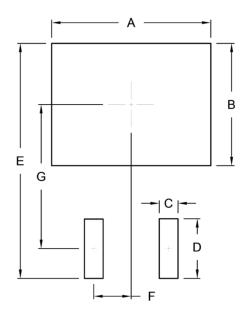
PACKAGE OUTLINE DIMENSIONS

TO-263AB (D²PAK)



DIM.	Unit (mm)		Unit ((inch)
DIM.	Min.	Max.	Min.	Max.
Α	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
С	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
е	2.41	2.67	0.095	0.105
Н	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)
Α	10.80	0.425
В	8.30	0.327
С	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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