30A, 45V Low V_F Schottky Barrier Rectifier

FEATURES

TAIWAN

• AEC-Q101 qualified available

EMICONDUCTOR

- Low power loss, high efficiency
- Guard ring for overvoltage protection
- High surge current capability
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

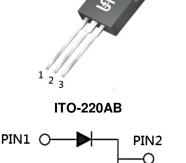
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

MECHANICAL DATA

- Case: ITO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I _F	30	А
V _{RRM}	45	V
I _{FSM}	220	А
T _{J MAX}	150	°C
Package	ITO-220AB	
Configuration	Dual dies	





PIN3 O

Cathode

PARAMETER	SYMBOL	MBRF30L45CT	UNIT
Marking code on the device		MBRF30L45CT	
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
Peak repetitive reverse surge current ⁽¹⁾	I _{RRM}	1	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

Notes:

1. tp = 2.0µs, 1.0KHz



THERMAL PERFORMANCE			
PARAMETER	SYMBOL	ТҮР	UNIT
Junction-to-case thermal resistance	R _{eJC}	1	°C/W

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	ТҮР	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_{F} = 15A, T_{J} = 25^{\circ}C$	V _F	-	0.55	V
	$I_{F} = 30A, T_{J} = 25^{\circ}C$		-	0.74	V
	I _F = 15A,T _J = 125°C		-	0.50	V
	I _F = 30A,T _J = 125°C		-	0.67	V
Reverse current @ rated V_R per diode ⁽²⁾	$T_J = 25^{\circ}C$	- I _R	-	400	μA
	T _J = 125°C		-	200	mA

Notes:

1. Pulse test with PW = 0.3ms

2. Pulse test with PW = 30ms

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING
MBRF30L45CT	ITO-220AB	50 / Tube
MBRF30L45CTH	ITO-220AB	50 / Tube

Notes:

1. "H" means AEC-Q101 qualified



0.1

0.01

0.001

INSTANTANEOUS REVERSE CURRENT (mA)

CHARACTERISTICS CURVES

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

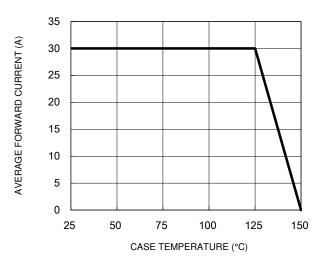


Fig.1 Forward Current Derating Curve

Fig.3 Typical Reverse Characteristics

T_{.I}=125°C

T_=25°C

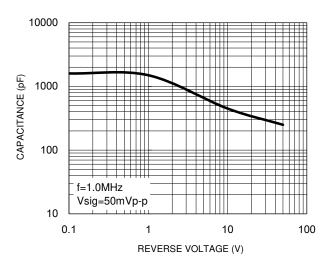
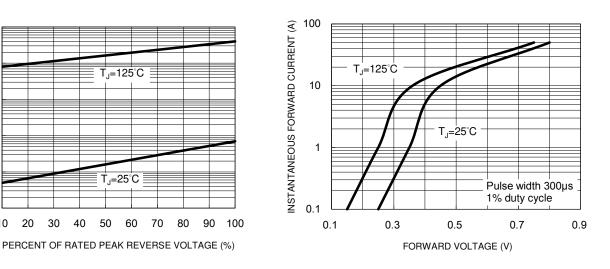


Fig.2 Typical Junction Capacitance

Fig.4 Typical Forward Characteristics



PEAK FORWARD SURGE CURRENT (A) 8.3ms single half sine wave NUMBER OF CYCLES AT 60 Hz

Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

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

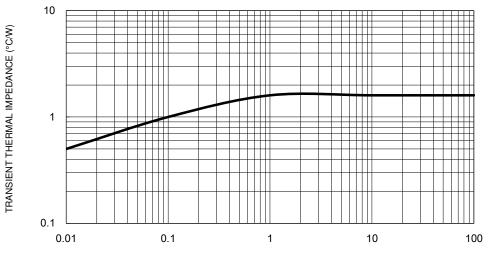


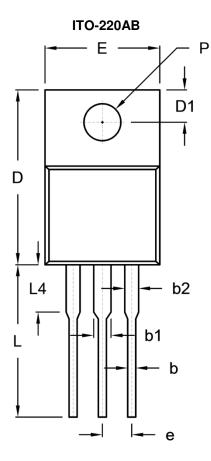
Fig.6 Typical Transient Thermal Impedance

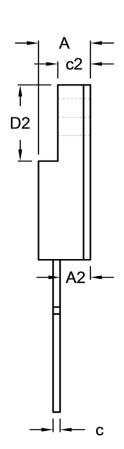
PULSE DURATION (s)

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PACKAGE OUTLINE DIMENSIONS





DIM.	Unit (mm)		Unit	(inch)
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.96	0.091	0.117
b	0.50	0.90	0.020	0.035
b1	-	1.80	-	0.071
b2	0.95	1.45	0.037	0.057
с	0.46	0.76	0.018	0.030
c2	2.50	3.16	0.098	0.124
D	14.80	15.50	0.583	0.610
D1	2.40	3.20	0.094	0.126
D2	6.30	6.90	0.248	0.272
E	9.60	10.30	0.378	0.406
е	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
Р	3.00	3.40	0.118	0.134

MARKING DIAGRAM

雪別 GYWWF
P/N
→ + • + (•

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



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