

30A, 35V - 200V Schottky Barrier Rectifier

FEATURES

- AEC-Q101 qualified available
- 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

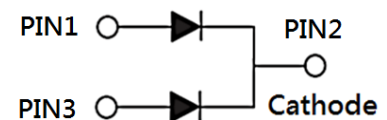
APPLICATIONS

- 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	A
V_{RRM}	35 - 200	V
I_{FSM}	200	A
$T_{J\ MAX}$	150	°C
Package	ITO-220AB	
Configuration	Dual dies	


ITO-220AB


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	MBRF	MBRF	MBRF	MBRF	MBRF	MBRF	MBRF	MBRF	UNIT
		3035	3045	3050	3060	3090	30100	30150	30200	
Marking code on the device		MBRF 3035 CT	MBRF 3045 CT	MBRF 3050 CT	MBRF 3060 CT	MBRF 3090 CT	MBRF 30100 CT	MBRF 30150 CT	MBRF 30200 CT	
Repetitive peak reverse voltage	V_{RRM}	35	45	50	60	90	100	150	200	V
Reverse voltage, total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	105	140	V
Forward current	I_F	30								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	200								A
Peak repetitive reverse surge current ⁽¹⁾	I_{RRM}	1.0				0.5				A

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	MBRF 3035 CT	MBRF 3045 CT	MBRF 3050 CT	MBRF 3060 CT	MBRF 3090 CT	MBRF 30100 CT	MBRF 30150 CT	MBRF 30200 CT	UNIT
Peak repetitive forward current (Rated V_R , Square wave, 20KHz)	I_{FRM}	30								A
Critical rate of rise of off-state voltage	dv/dt	10,000								V/ μs
Junction temperature	T_J	-55 to +150								$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150								$^\circ\text{C}$

Notes:

- $t_p = 2.0\mu\text{s}$, 1.0KHz

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	$R_{\theta JC}$	4	$^\circ\text{C}/\text{W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT	
Forward voltage per diode ⁽¹⁾	MBRF3035CT MBRF3045CT	$I_F = 15\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.70	V	
	MBRF3050CT MBRF3060CT			-	0.75	V	
	MBRF3090CT MBRF30100CT			-	0.84	V	
	MBRF30150CT MBRF30200CT			-	0.95	V	
	MBRF3035CT MBRF3045CT			$I_F = 30\text{A}, T_J = 25^\circ\text{C}$	-	0.82	V
	MBRF3050CT MBRF3060CT				-	0.90	V
	MBRF3090CT MBRF30100CT	-			0.94	V	
	MBRF30150CT MBRF30200CT	-			1.05	V	

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT		
Forward voltage per diode ⁽¹⁾	MBRF3035CT MBRF3045CT	$I_F = 15\text{A}, T_J = 125^\circ\text{C}$	V_F	-	0.60	V		
	MBRF3050CT MBRF3060CT			-	0.65	V		
	MBRF3090CT MBRF30100CT			-	0.70	V		
	MBRF30150CT MBRF30200CT			-	0.80	V		
	MBRF3035CT MBRF3045CT			$I_F = 30\text{A}, T_J = 125^\circ\text{C}$	-	0.73	V	
	MBRF3050CT MBRF3060CT	-			0.78	V		
	MBRF3090CT MBRF30100CT	-			0.82	V		
	MBRF30150CT MBRF30200CT	-			0.92	V		
	Reverse current @ rated V_R per diode ⁽²⁾	MBRF3035CT MBRF3045CT MBRF3050CT MBRF3060CT MBRF3090CT MBRF30100CT MBRF30150CT MBRF30200CT			$T_J = 25^\circ\text{C}$	I_R	-	200
		MBRF3035CT MBRF3045CT		$T_J = 125^\circ\text{C}$	-		20	mA
MBRF3050CT MBRF3060CT		-	15		mA			
MBRF3090CT MBRF30100CT MBRF30150CT MBRF30200CT		-	10		mA			

Notes:

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

ORDERING INFORMATION		
ORDERING CODE ⁽¹⁾⁽²⁾	PACKAGE	PACKING
MBRF30xCT	ITO-220AB	50 / Tube
MBRF30xCTH	ITO-220AB	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF3035CT) to 200V(MBRF30200CT)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

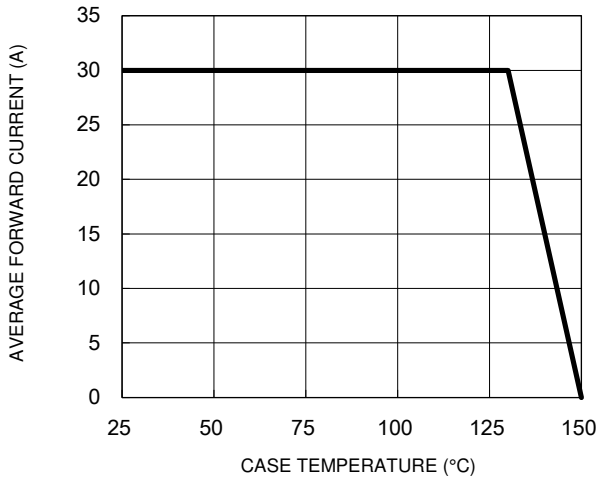


Fig.2 Typical Junction Capacitance

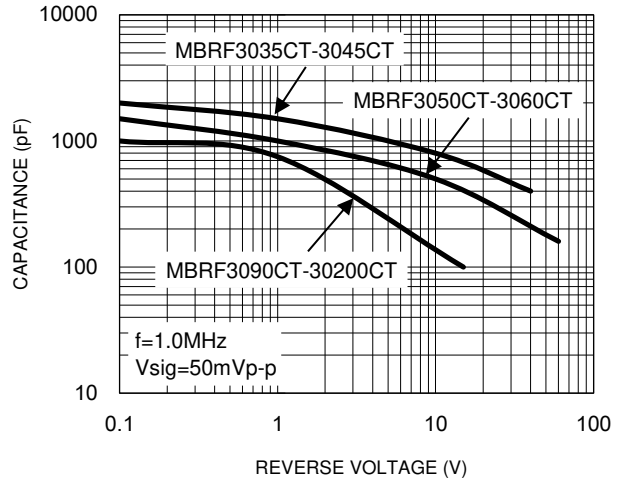


Fig.3 Typical Reverse Characteristics

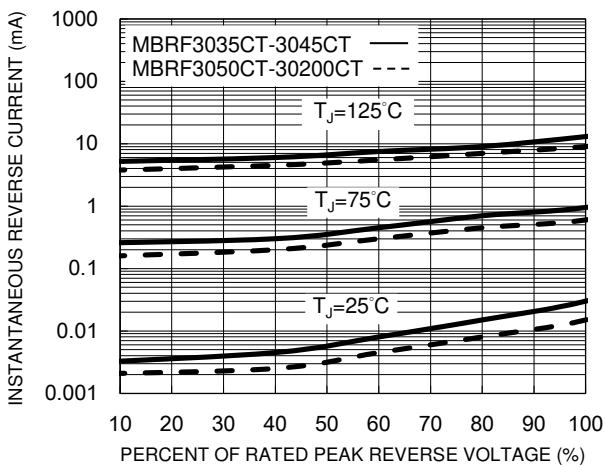


Fig.4 Typical Forward Characteristics

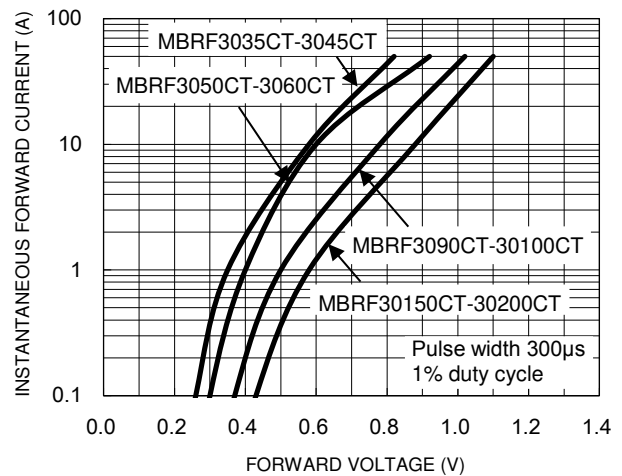
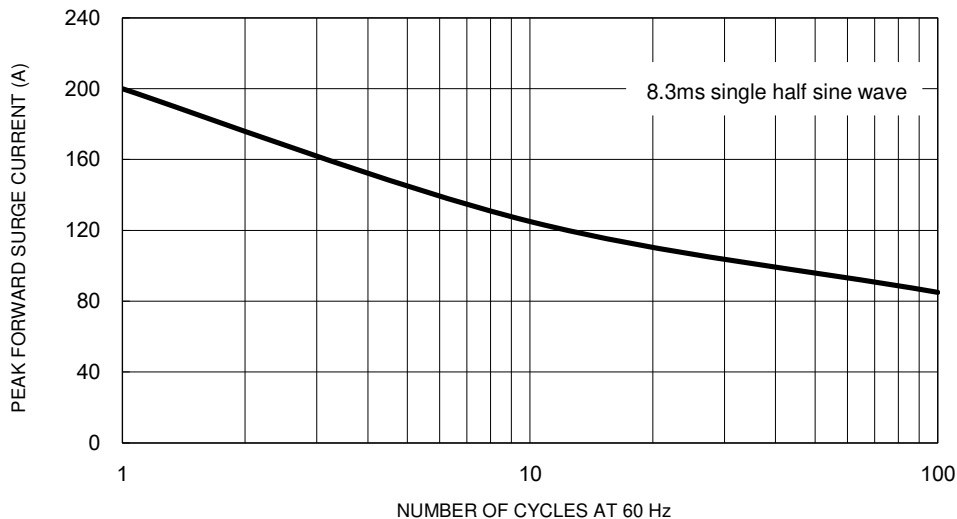


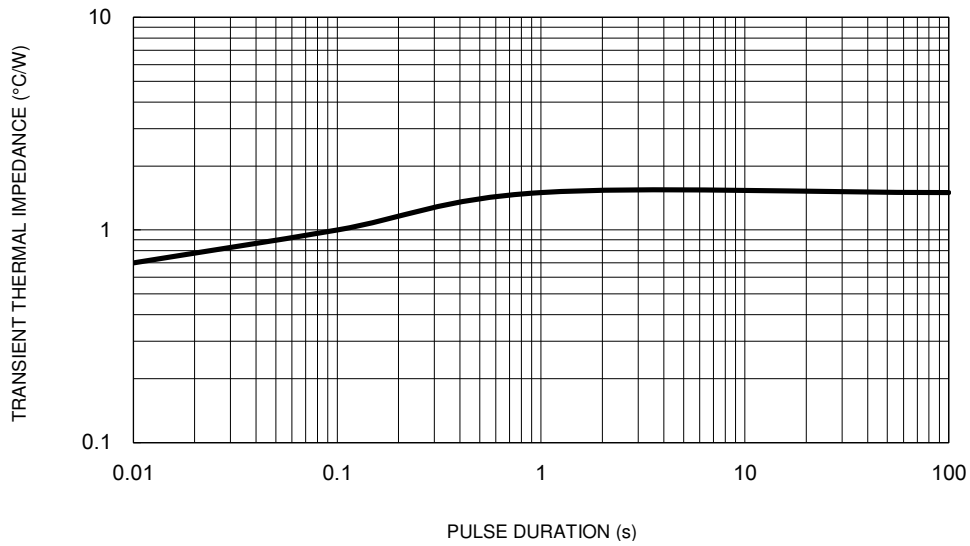
Fig.5 Maximum Non-Repetitive Forward Surge Current



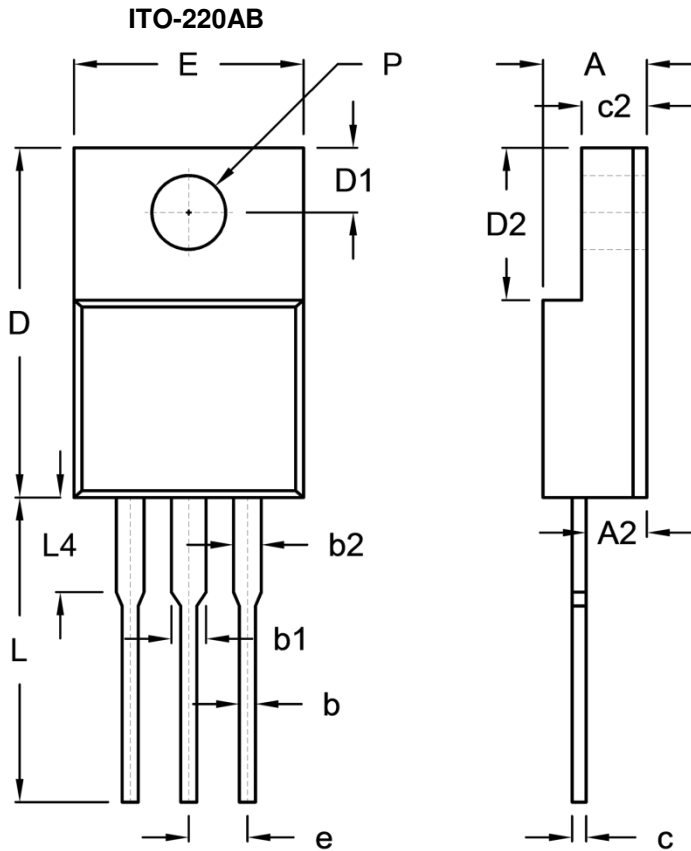
CHARACTERISTICS CURVES

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

Fig.6 Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS



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
c	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
e	2.41	2.67	0.095	0.105
L	12.60	13.80	0.496	0.543
L4	-	4.10	-	0.161
P	3.00	3.40	0.118	0.134

MARKING DIAGRAM



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

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