

10A, 35V - 200V Schottky Barrier Rectifier

FEATURES

- AEC-Q101 qualified available
- Low power loss, high efficiency
- Guard ring for over-voltage protection
- High surge current capability
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

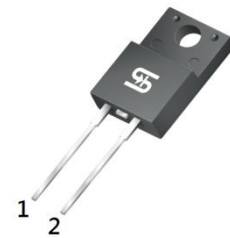
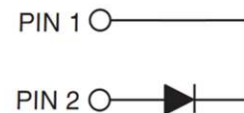
APPLICATIONS

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

MECHANICAL DATA

- Case: ITO-220AC
- 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	10	A
V_{RRM}	35 - 200	V
I_{FSM}	150	A
T_{JMAX}	150	°C
Package	ITO-220AC	
Configuration	Single die	


ITO-220AC


ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	MBRF 1035	MBRF 1045	MBRF 1050	MBRF 1060	MBRF 1090	MBRF 10100	MBRF 10150	MBRF 10200	UNIT
Marking code on the device		MBRF 1035	MBRF 1045	MBRF 1050	MBRF 1060	MBRF 1090	MBRF 10100	MBRF 10150	MBRF 10200	
Repetitive peak revers 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	10								A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	150								A
Peak repetitive reverse surge current ⁽¹⁾	I_{RRM}	1.0			0.5					A
Peak repetitive forward current (Rated V_R , Square wave, 20KHz)	I_{FRM}	20								A

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	MBRF 1035	MBRF 1045	MBRF 1050	MBRF 1060	MBRF 1090	MBRF 10100	MBRF 10150	MBRF 10200	UNIT
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 +175								$^\circ\text{C}$

Notes:

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

THERMAL PERFORMANCE				
PARAMETER		SYMBOL	TYP	UNIT
Junction-to-case resistance	MBRF1035-10150	$R_{\theta\text{JC}}$	3	$^\circ\text{C/W}$
	MBRF10200		4	$^\circ\text{C/W}$

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	MBRF1035 MBRF1045	$I_F = 10\text{A}$, $T_J = 25^\circ\text{C}$	V_F	-	0.70	V
	MBRF1050 MBRF1060			-	0.80	V
	MBRF1090			-	0.85	V
	MBRF10100			-	1.05	V
	MBRF10150 MBRF10200			-	1.05	V
	MBRF1035 MBRF1045	$I_F = 10\text{A}$, $T_J = 125^\circ\text{C}$		-	0.57	V
	MBRF1050 MBRF1060			-	0.70	V
	MBRF1090			-	0.71	V
	MBRF10100			-	0.71	V
	MBRF10150 MBRF10200			-	-	V
Reverse current @ rated V_R ⁽²⁾	MBRF1035 MBRF1045 MBRF1050 MBRF1060 MBRF1090 MBRF10100 MBRF10150 MBRF10200	$T_J = 25^\circ\text{C}$	I_R	-	100	μA
	MBRF1035 MBRF1045	$T_J = 125^\circ\text{C}$		-	15	mA
	MBRF1050 MBRF1060			-	10	mA
	MBRF1090 MBRF10100			-	6	mA
	MBRF10150 MBRF10200			-	2	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE⁽¹⁾⁽²⁾	PACKAGE	PACKING
MBRF10x	ITO-220AC	50 / Tube
MBRF10xH	ITO-220AC	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF1035) to 200V(MBRF10200)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

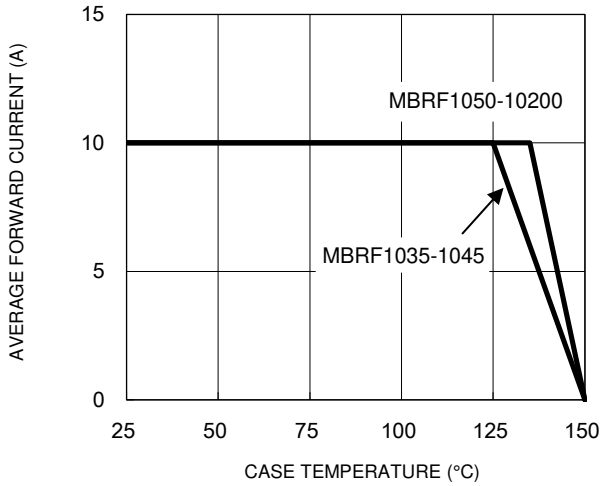


Fig.2 Typical Junction Capacitance

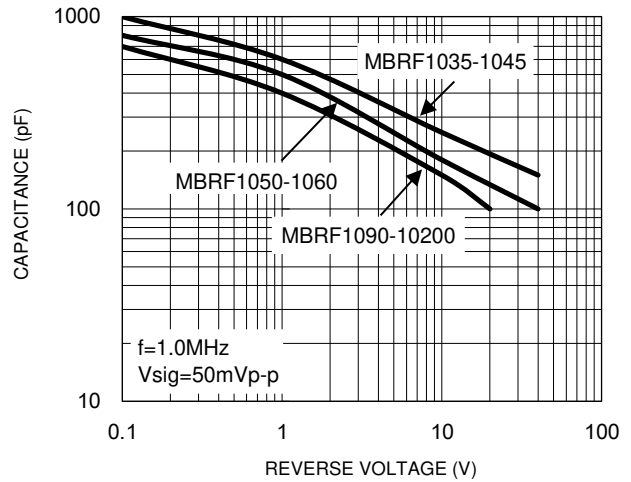


Fig.3 Typical Reverse Characteristics

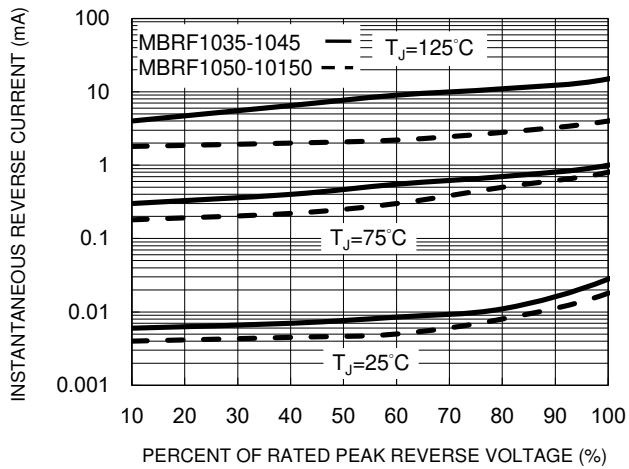


Fig.4 Typical Forward Characteristics

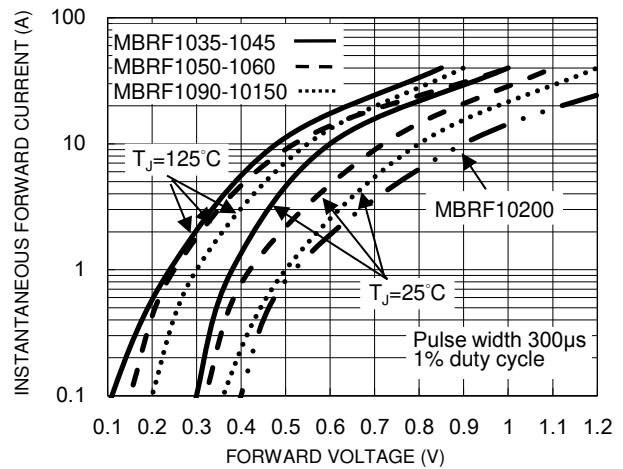
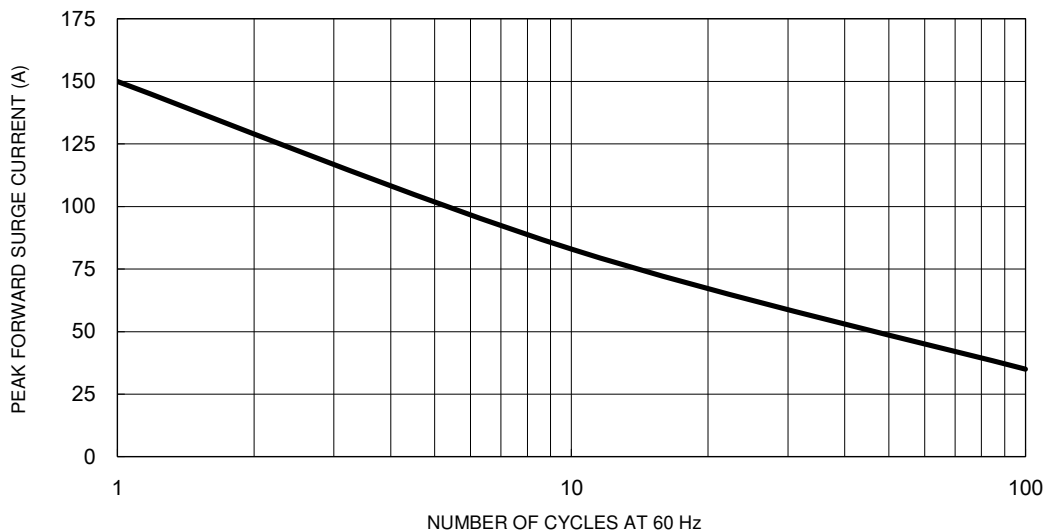


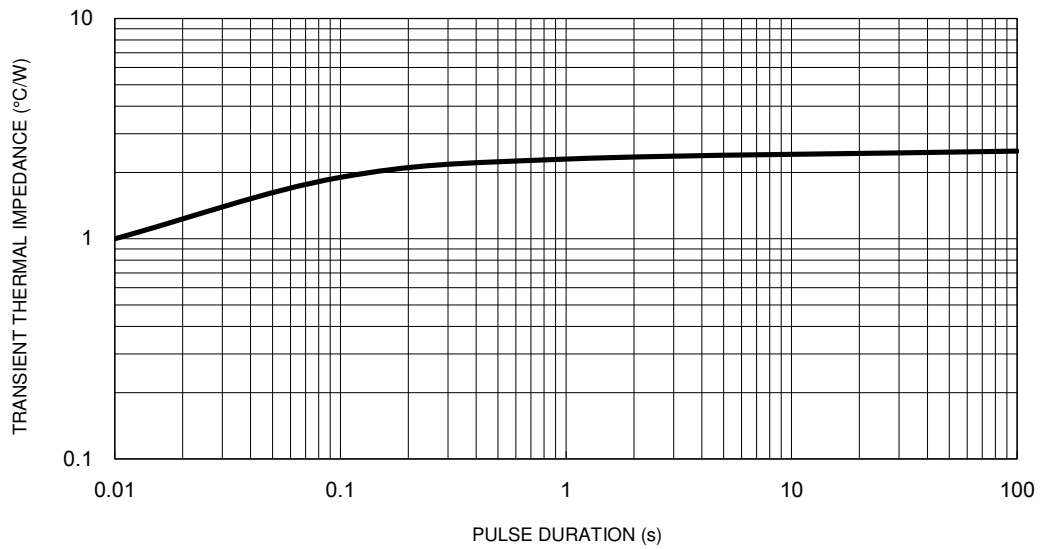
Fig.5 Maximum Non-Repetitive Forward Surge Current



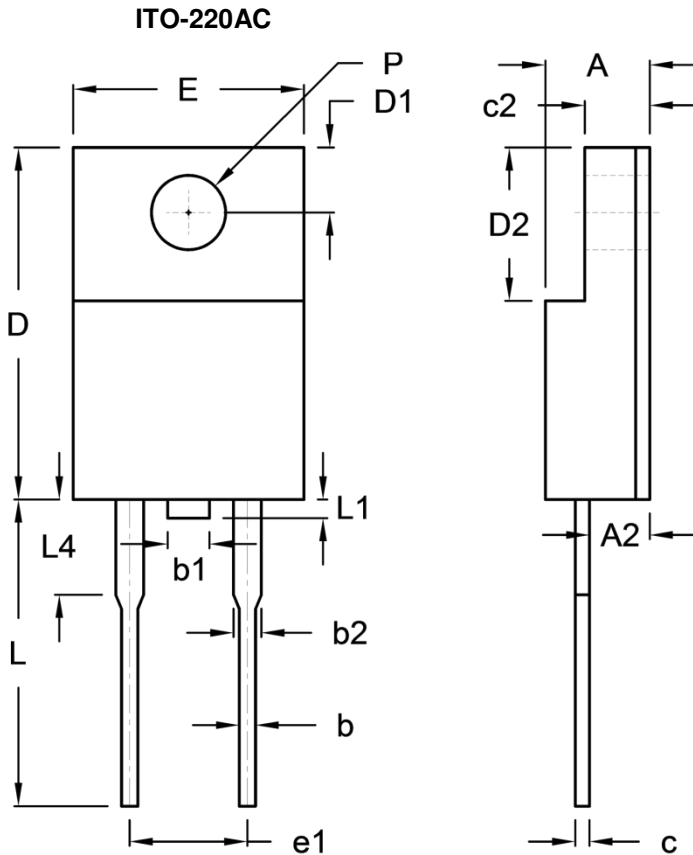
CHARACTERISTICS CURVES

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

Fig.6 Typical Transient Thermal Characteristics



PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A2	2.30	2.90	0.091	0.114
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	3.10	0.098	0.114
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
e1	4.95	5.20	0.195	0.205
L	12.60	13.80	0.496	0.543
L1	0.00	1.60	0.000	0.063
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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