

5A, 100V - 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

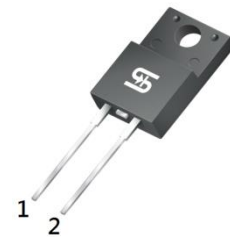
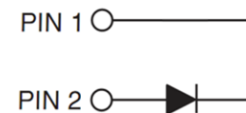
APPLICATIONS

- 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: 1.60g (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
I_F	5	A
V_{RRM}	100 - 200	V
I_{FSM}	120	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	MBRF5100	MBRF5150	MBRF5200	UNIT
Marking code on the device		MBRF5100	MBRF5150	MBRF5200	
Repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Reverse voltage total rms value	$V_{R(RMS)}$	70	105	140	V
Forward current	I_F	5			A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I_{FSM}	120			A
Peak repetitive reverse surge current ⁽¹⁾	I_{RRM}	0.5			A
Peak repetitive forward current (Rated V_R , Square wave, 20KHz)	I_{FRM}	10			A
Critical rate of rise of off-state voltage	dv/dt	10,000			V/ μs
Junction temperature	T_J	-55 to +150			°C
Storage temperature	T_{STG}	-55 to +175			°C

Notes:

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

THERMAL PERFORMANCE			
PARAMETER	SYMBOL	TYP	UNIT
Junction-to-case resistance	$R_{\theta JC}$	3	°C/W

ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage ⁽¹⁾	MBRF5100	$I_F = 5\text{A}, T_J = 25^\circ\text{C}$	V_F	-	0.90	V
	MBRF5150			-	1.02	V
	MBRF5200			-	0.80	V
	MBRF5100	$I_F = 5\text{A}, T_J = 125^\circ\text{C}$		-	0.92	V
MBRF5150	-		5	mA		
Reverse current @ rated V_R ⁽²⁾		$T_J = 25^\circ\text{C}$	I_R	-	100	μA
		$T_J = 125^\circ\text{C}$		-	5	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
MBRF5x	ITO-220AC	50 / Tube
MBRF5xH	ITO-220AC	50 / Tube

Notes:

1. "x" defines voltage from 100V(MBRF5100) to 200V(MBRF5200)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

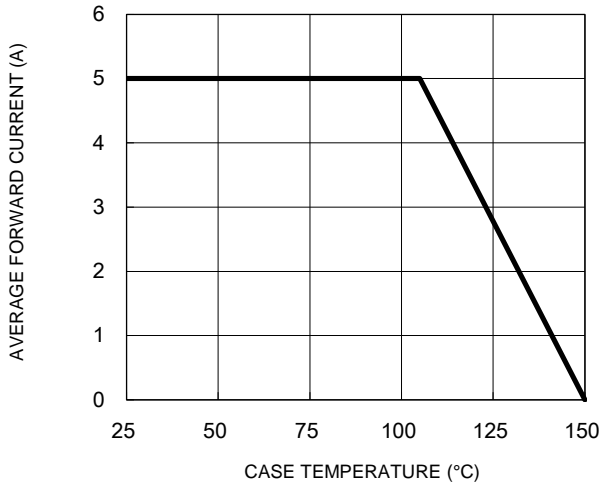


Fig.2 Typical Junction Capacitance

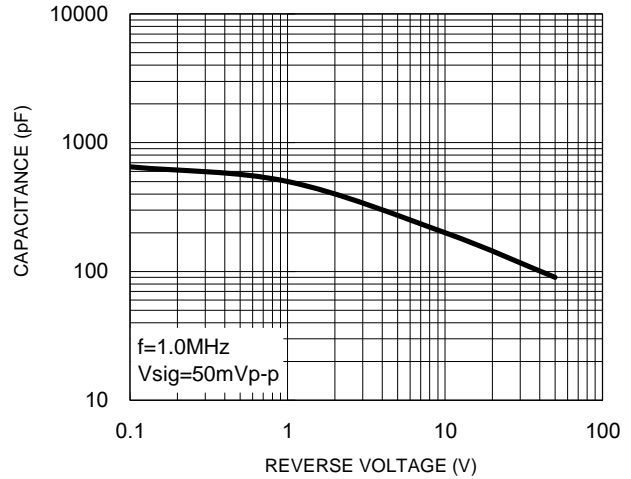


Fig.3 Typical Reverse Characteristics

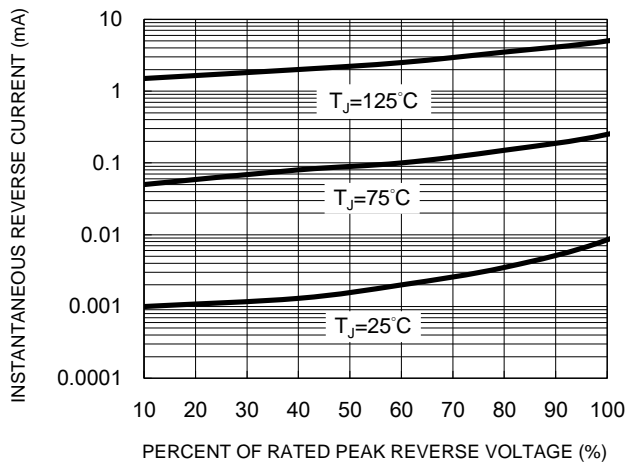


Fig.4 Typical Forward Characteristics

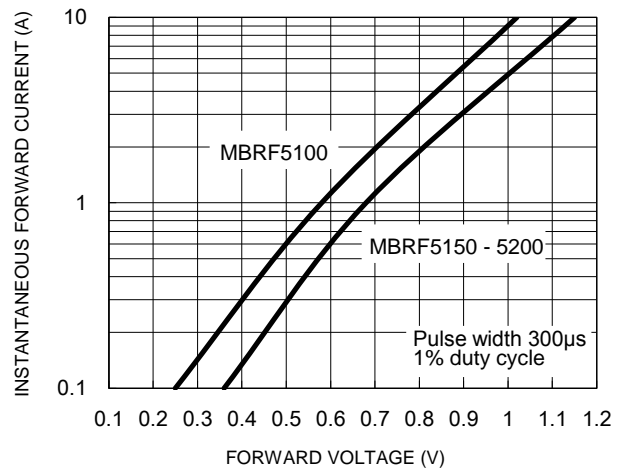
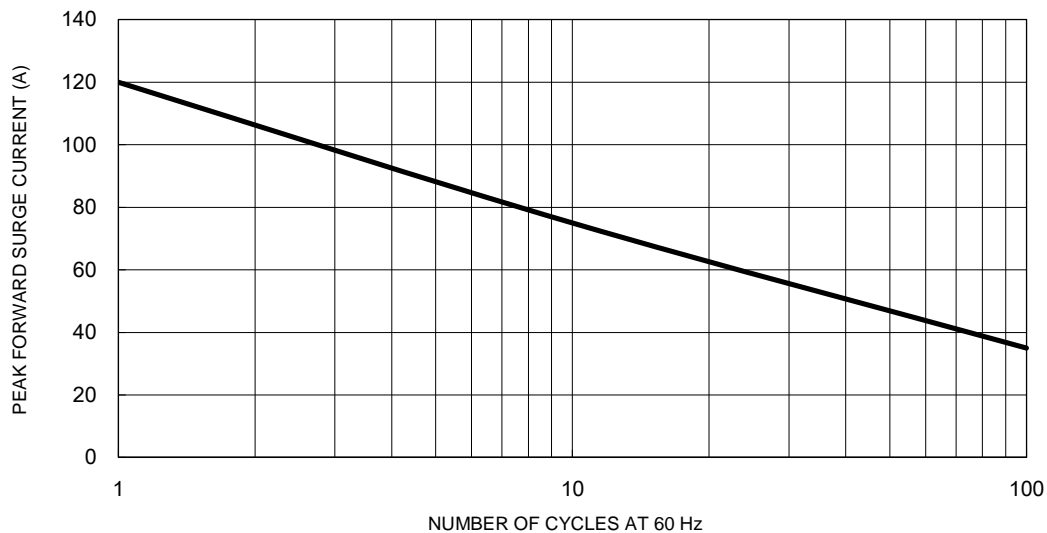


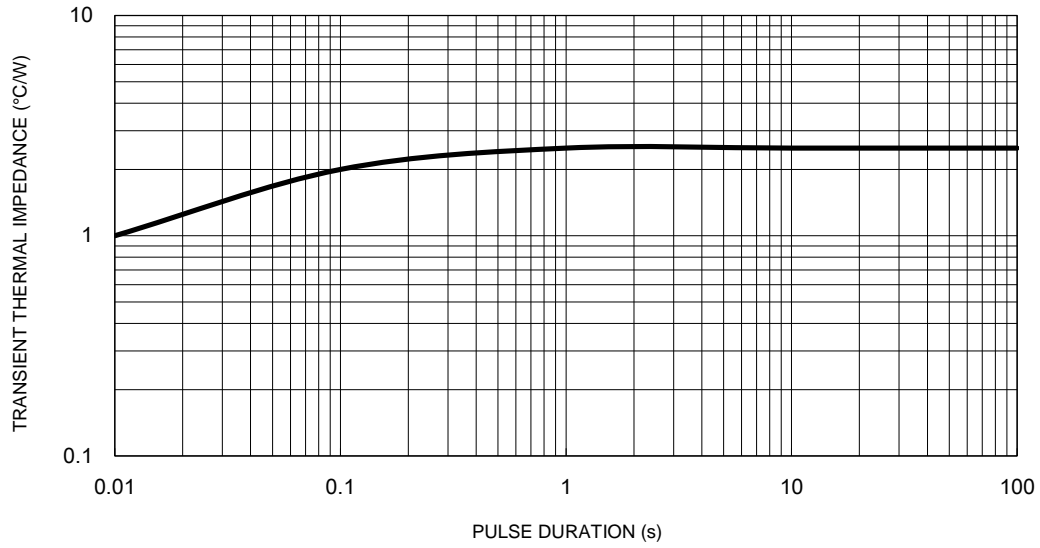
Fig.5 Maximum Non-Repetitive Forward Surge Current



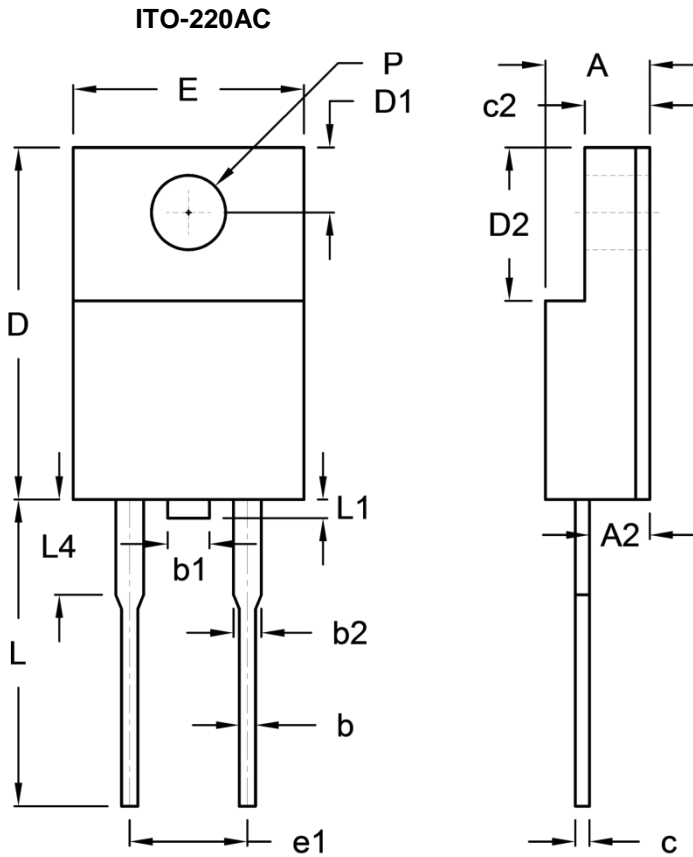
CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ 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
- YWWF = Date Code
- F = Factory Code

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