7.5A, 35V - 150V 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

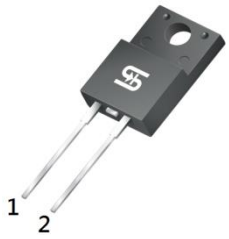
- Switching mode power supply (SMPS)
- Adapters
- DC to DC converter

MECHANICAL DATA

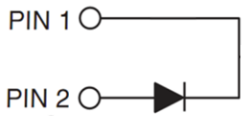
- Case: ITO-220AC
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.70g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	7.5	A
V_{RRM}	35 - 150	V
I_{FSM}	150	A
$T_{J\,MAX}$	150	°C
Package	ITO-220AC	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE



ITO-220AC



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)									
PARAMETER	**SYMBOL**	**MBRF 735**	**MBRF 745**	**MBRF 750**	**MBRF 760**	**MBRF 790**	**MBRF 7100**	**MBRF 7150**	**UNIT**
Marking code on the device		MBRF 735	MBRF 745	MBRF 750	MBRF 760	MBRF 790	MBRF 7100	MBRF 7150	
Repetitive peak revers voltage	V_{RRM}	35	45	50	60	90	100	150	V
Reverse voltage total rms value	$V_{R(RMS)}$	24	31	35	42	63	70	105	V
Forward current	I_F	7.5							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}	15							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. tp = 2.0μs, 1.0KHz

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-case resistance	$R_{\Theta JC}$	7	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	MBRF735 MBRF745	I_F = 7.5A, T_J = 25°C	V_F	-	-	V
	MBRF750 MBRF760			-	0.75	V
	MBRF790 MBRF7100			-	0.92	V
	MBRF7150			-	1.02	V
	MBRF735 MBRF745	I_F = 15A, T_J = 25°C		-	0.84	V
	MBRF750 MBRF760			-	-	V
	MBRF790 MBRF7100			-	-	V
	MBRF7150			-	-	V
	MBRF735 MBRF745	I_F = 7.5A, T_J = 125°C		-	0.57	V
	MBRF750 MBRF760			-	0.65	V
	MBRF790 MBRF7100			-	0.82	V
	MBRF7150			-	0.92	V
	MBRF735 MBRF745	I_F = 15A, T_J = 125°C		-	0.72	V
	MBRF750 MBRF760			-	-	V
	MBRF790 MBRF7100			-	-	V
	MBRF7150			-	-	V
Reverse current @ rated V_R[2]	MBRF735 MBRF745 MBRF750 MBRF760 MBRF790 MBRF7100 MBRF7150	T_J = 25°C	I_R	-	100	μA
	MBRF735 MBRF745	T_J = 125°C		-	15	mA
	MBRF750 MBRF760			-	10	mA
	MBRF790 MBRF7100 MBRF7150			-	5	mA

Notes:

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

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
MBRF7x	ITO-220AC	50 / Tube
MBRF7xH	ITO-220AC	50 / Tube

Notes:

1. "x" defines voltage from 35V(MBRF735) to 150V(MBRF7150)
2. "H" means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

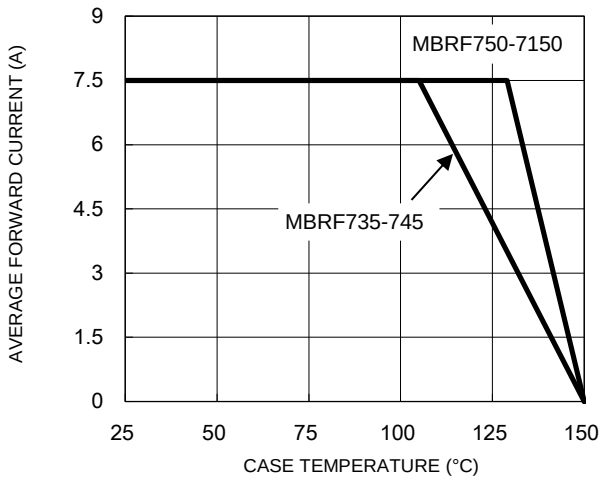


Fig.2 Typical Junction Capacitance

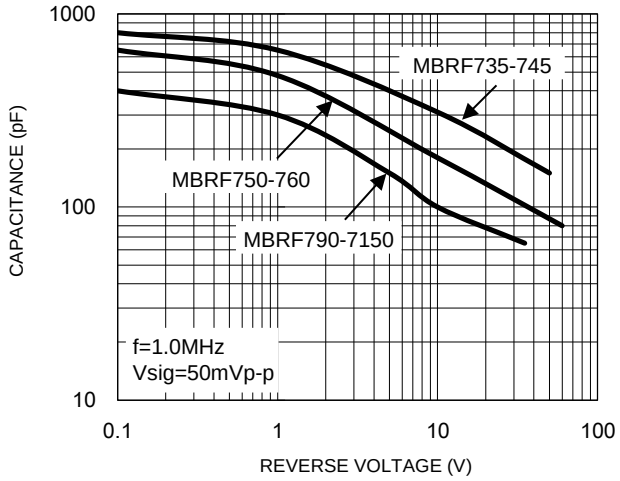


Fig.3 Typical Reverse Characteristics

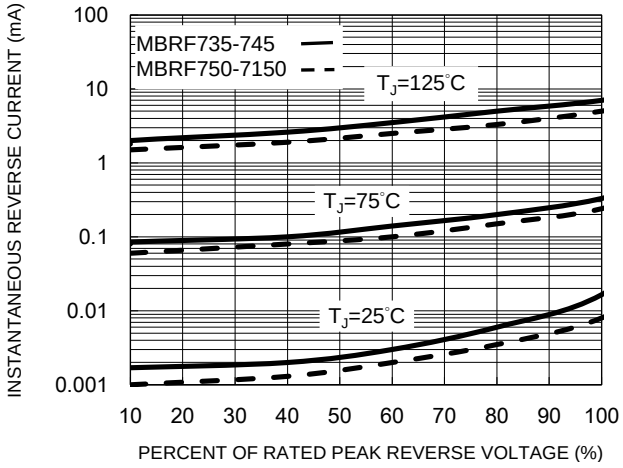


Fig.4 Typical Forward Characteristics

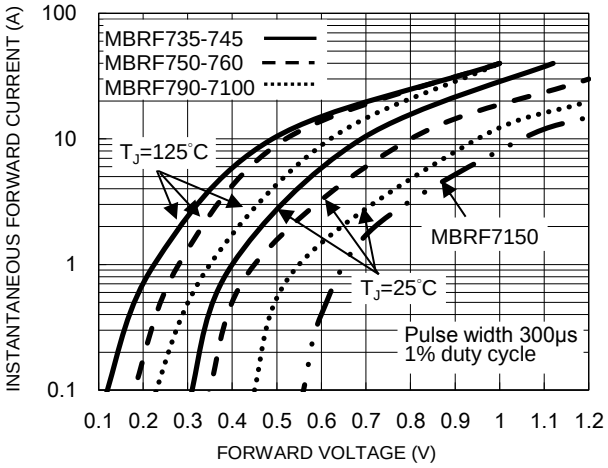
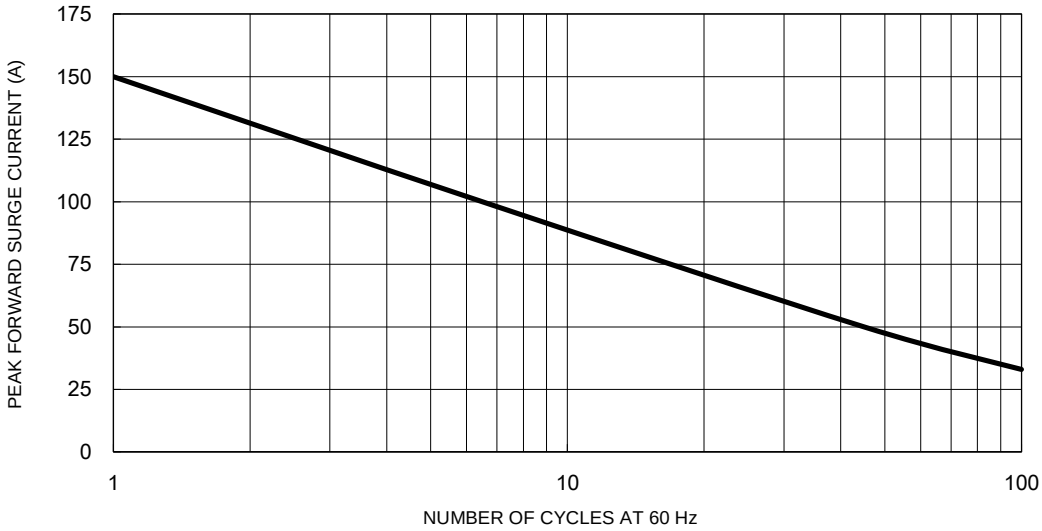


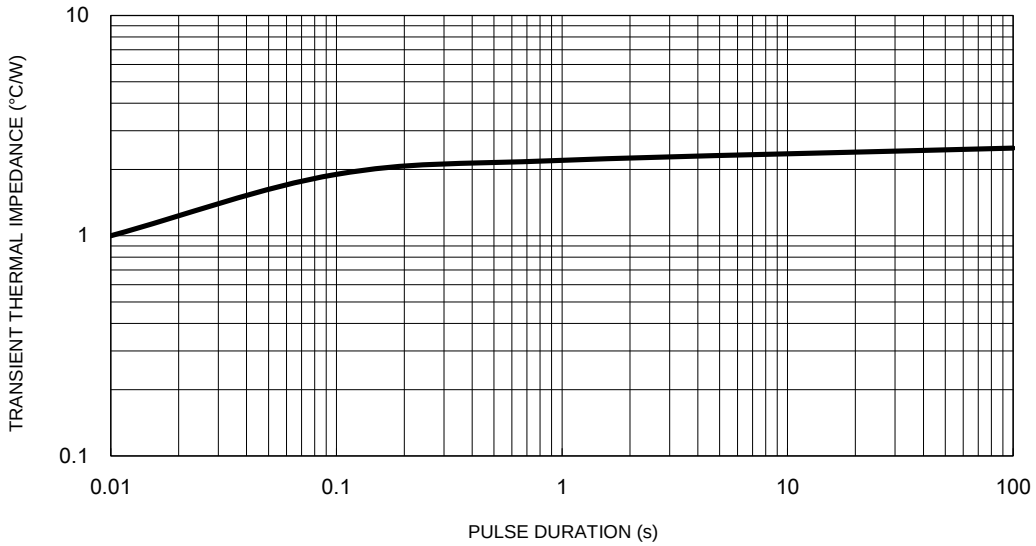
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

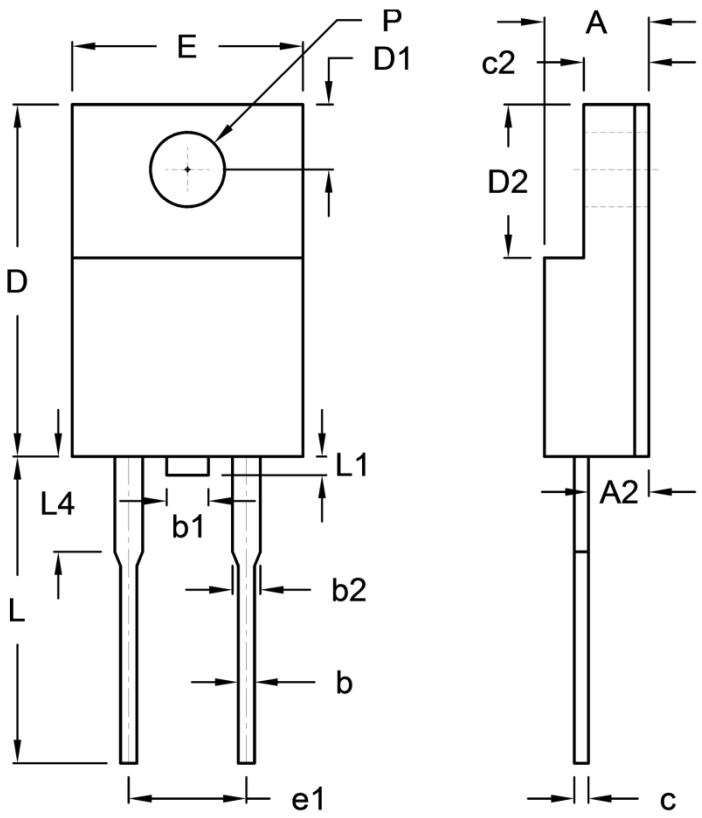
(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Characteristics



PACKAGE OUTLINE DIMENSIONS

ITO-220AC



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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