

## 20A, 100V - 120V Low $V_F$ 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

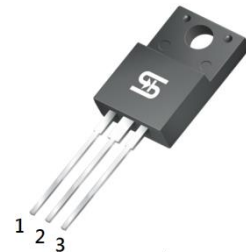
### APPLICATIONS

- 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
$I_F$	20	A
$V_{RRM}$	100 - 120	V
$I_{FSM}$	150	A
$T_{JMAX}$	150	°C
Package	ITO-220AB	
Configuration	Dual dies	



ITO-220AB



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MBRF20L100CT	MBRF20L120CT	UNIT
Marking code on the device		MBRF20L100CT	MBRF20L120CT	
Repetitive peak reverse voltage	$V_{RRM}$	100	120	V
Reverse voltage, total rms value	$V_{R(RMS)}$	70	84	V
Forward current	$I_F$	20		A
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	$I_{FSM}$	150		A
Peak repetitive reverse surge current <sup>(1)</sup>	$I_{RRM}$	1		A
Peak repetitive forward current (Rated $V_R$ , Square wave, 20KHz)	$I_{FRM}$	20		A
Critical rate of rise of off-state voltage	dv/dt	10,000		V/ $\mu\text{s}$
Junction temperature	$T_J$	-55 to +150		°C
Storage temperature	$T_{STG}$	-55 to +150		°C

#### Notes:

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

THERMAL PERFORMANCE				
PARAMETER		SYMBOL	TYP	UNIT
Junction-to-case thermal resistance	MBRF20L100CT	$R_{\theta JC}$	5.5	°C/W
	MBRF20L120CT		5.0	°C/W

ELECTRICAL SPECIFICATIONS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	MBRF20L100CT	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$	$V_F$	0.72	0.75	V
	MBRF20L120CT			0.78	0.83	V
	MBRF20L100CT	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$		0.81	0.85	V
	MBRF20L120CT			0.86	0.90	V
	MBRF20L100CT	$I_F = 10\text{A}, T_J = 125^\circ\text{C}$		0.58	0.68	V
	MBRF20L120CT			0.63	0.72	V
	MBRF20L100CT	$I_F = 20\text{A}, T_J = 125^\circ\text{C}$		0.67	0.75	V
	MBRF20L120CT			0.73	0.80	V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	MBRF20L100CT	$T_J = 25^\circ\text{C}$	$I_R$	-	20	$\mu\text{A}$
	MBRF20L120CT			-	15	mA
	MBRF20L100CT	$T_J = 125^\circ\text{C}$		-	10	mA
	MBRF20L120CT			-	10	mA

**Notes:**

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

ORDERING INFORMATION		
ORDERING CODE <sup>(1)(2)</sup>	PACKAGE	PACKING
MBRF20LxCT	ITO-220AB	50 / Tube
MBRF20LxCTH	ITO-220AB	50 / Tube

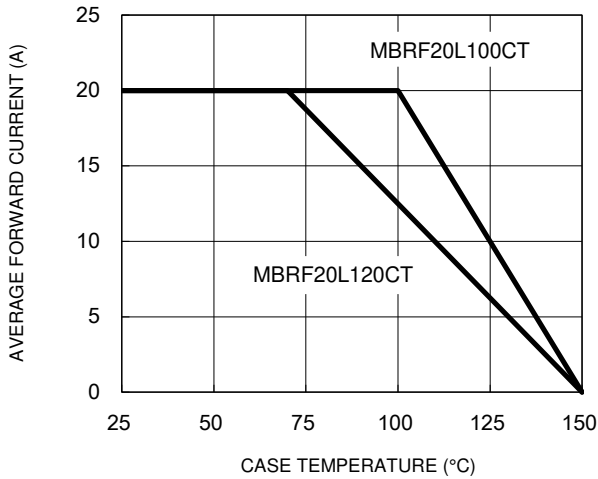
**Notes:**

1. "x" defines voltage from 100V(MBRF20L100CT) to 120V(MBRF20L120CT)
2. "H" means AEC-Q101 qualified

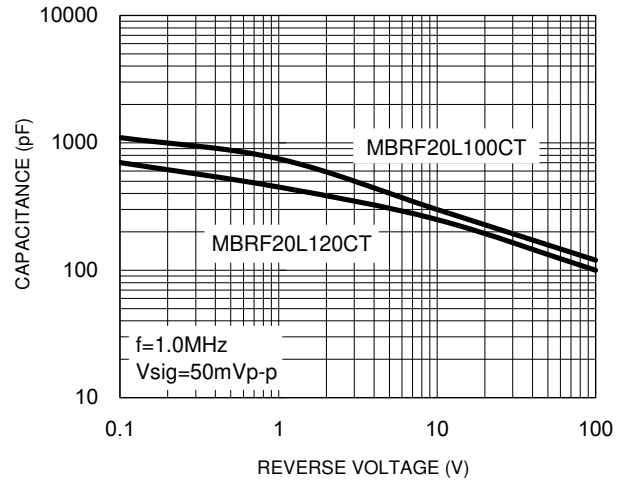
**CHARACTERISTICS CURVES**

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

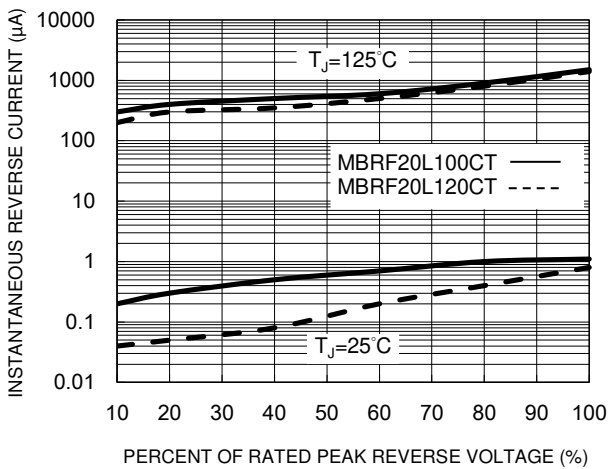
**Fig.1 Forward Current Derating Curve**



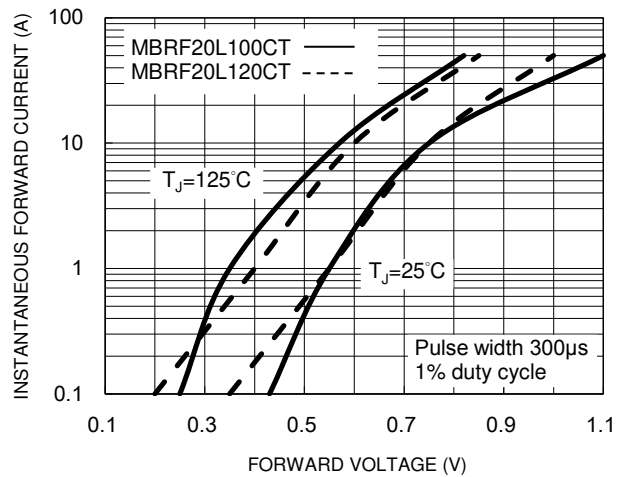
**Fig.2 Typical Junction Capacitance**



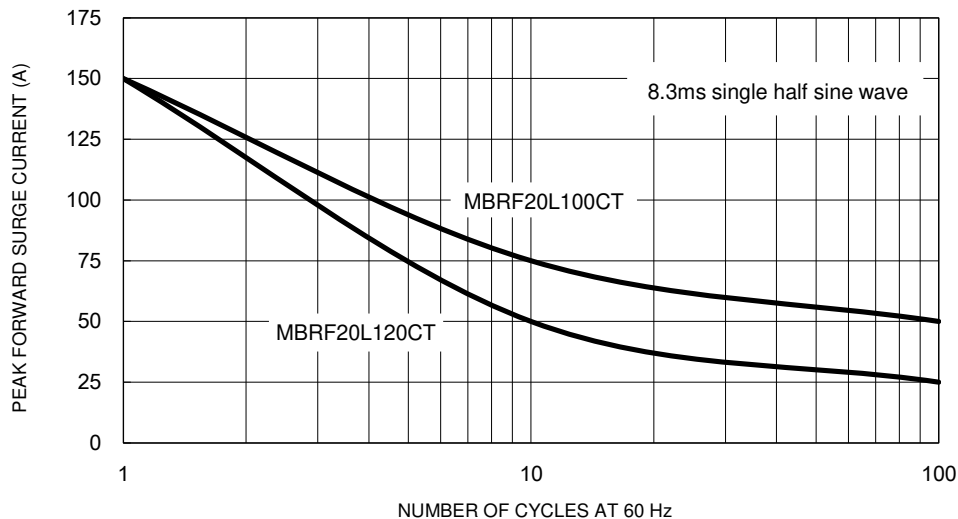
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



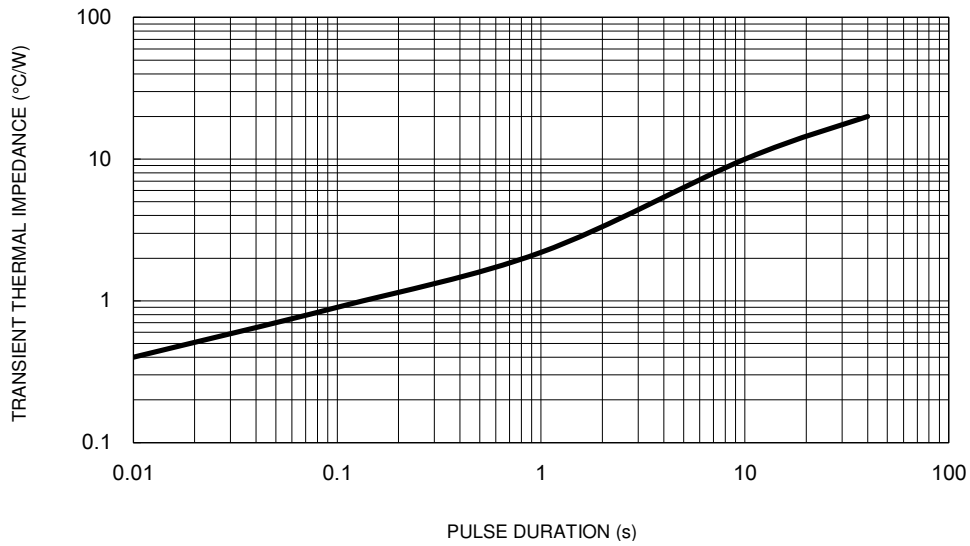
**Fig.5 Maximum Non-Repetitive Forward Surge Current**



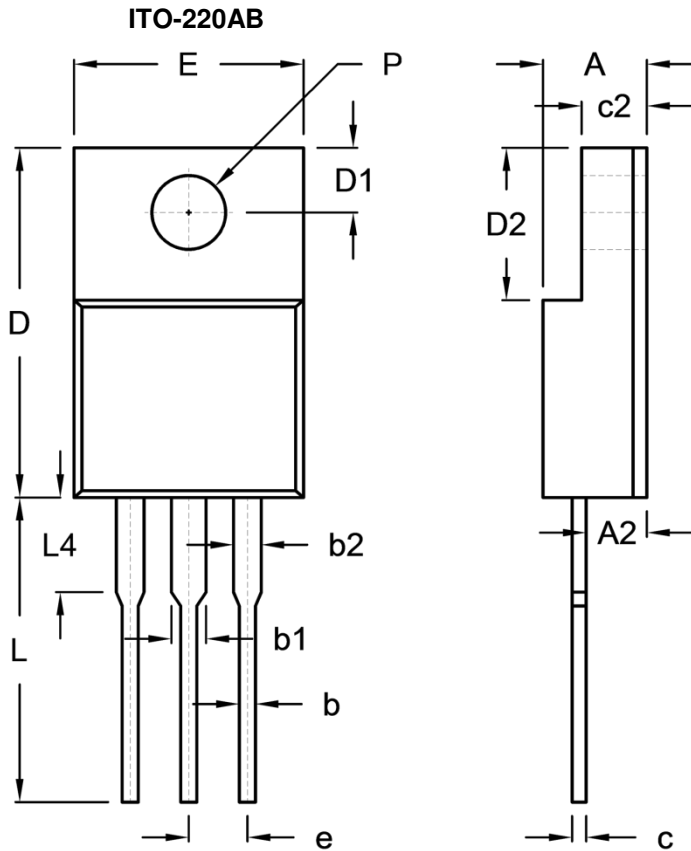
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  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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