

30A, 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
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

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

MECHANICAL DATA

- Case: TO-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: 1.90g (approximately)

KEY PARAMETERS				
PARAMETER	VALUE	UNIT		
I _F	30	Α		
V_{RRM}	120	V		
I _{FSM}	200	Α		
T_{JMAX}	150 °C			
Package	TO-220AB			
Configuration	Dual dies			

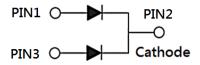








TO-220AB



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C unless otherwise noted)					
PARAMETER	SYMBOL	MBR30L120CT	UNIT		
Marking code on the device		MBR30L120CT			
Repetitive peak reverse voltage	V_{RRM}	120	V		
Reverse voltage, total rms value	$V_{R(RMS)}$	84	V		
Forward current	I _F	30	А		
Surge peak forward current, 8.3ms single half sine wave superimposed on rated load	I _{FSM}	200	А		
Peak repetitive reverse surge current ⁽¹⁾	I _{RRM}	1	А		
Peak repetitive forward current (Rated V _R , Square wave, 20KHz)	I _{FRM}	30	А		
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 +150	°C		

Notes:

1. $tp = 2.0\mu s$, 1.0KHz

MBR30L120CT Taiwan Semiconductor

THERMAL PERFORMANCE					
PARAMETER	SYMBOL	TYP	UNIT		
Junction-to-case thermal resistance	R _{eJC}	3	°C/W		

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)					
PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode ⁽¹⁾	$I_F = 15A, T_J = 25^{\circ}C$	V _F	0.81	0.88	V
	$I_F = 30A, T_J = 25^{\circ}C$		0.89	0.95	V
	I _F = 15A, T _J = 125°C		0.66	0.75	V
	$I_F = 30A, T_J = 125^{\circ}C$		0.76	0.82	V
Reverse current @ rated V _R per diode ⁽²⁾	T _J = 25°C	I _R	-	20	μA
	T _J = 125°C		-	25	mA

Notes:

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

ORDERING INFORMATION				
ORDERING CODE ⁽¹⁾	PACKAGE	PACKING		
MBR30L120CT	TO-220AB	50 / Tube		
MBR30L120CTH	TO-220AB	50 / Tube		

Notes:

1. "H" means AEC-Q101 qualified



CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

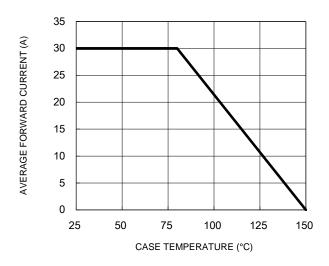


Fig.3 Typical Reverse Characteristics

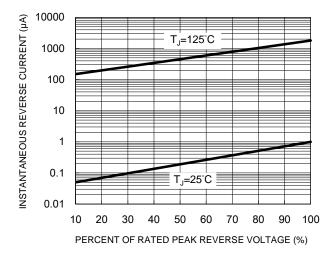


Fig.2 Typical Junction Capacitance

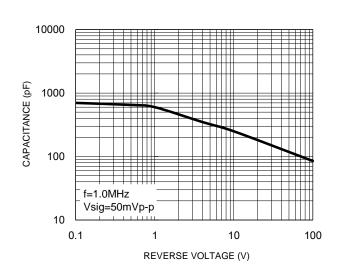


Fig.4 Typical Forward Characteristics

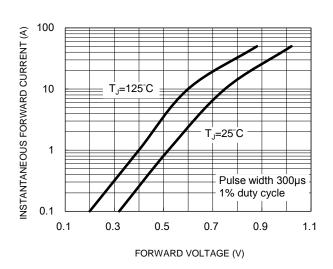
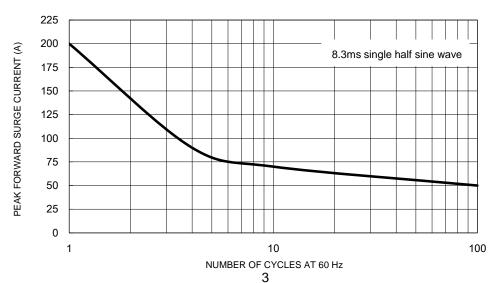


Fig.5 Maximum Non-Repetitive Forward Surge Current

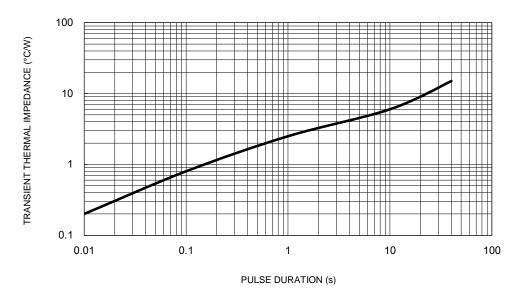




CHARACTERISTICS CURVES

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

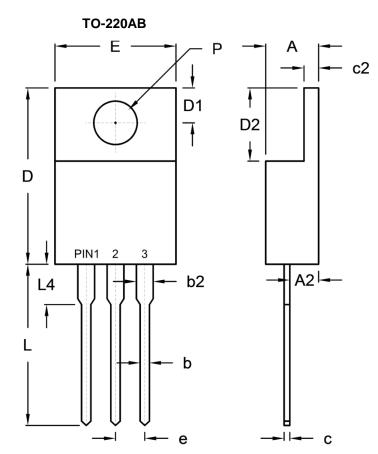
Fig.6 Typical Transient Thermal Impedance







PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)		
Dilvi.	Min.	Max.	Min.	Max.	
Α	4.42	4.76	0.174	0.187	
A2	2.20	2.80	0.087	0.110	
b	0.68	0.94	0.027	0.037	
b2	1.14	1.77	0.045	0.070	
С	0.35	0.64	0.014	0.025	
c2	1.14	1.40	0.045	0.055	
D	14.60	16.00	0.575	0.630	
D1	2.62	3.44	0.103	0.135	
D2	5.84	6.86	0.230	0.270	
E	-	10.50	-	0.413	
е	2.41	2.67	0.095	0.105	
L	13.19	14.79	0.519	0.582	
L4	2.80	4.20	0.110	0.165	
Р	3.54	4.00	0.139	0.157	

MARKING DIAGRAM



P/N = Marking Code = Green Compound G

YWW = Date Code F = Factory Code



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