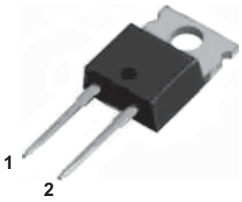
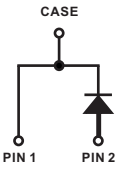
High-Voltage Schottky Rectifier, 10A/100V

Available RoHS* COMPLIANT

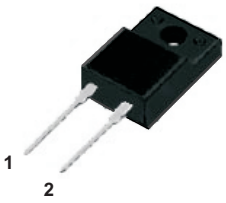
FEATURES

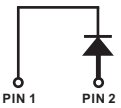
- 150°C T_J operation
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Solder bath temperature 275°C maximum, 10s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- Compliant to RoHS



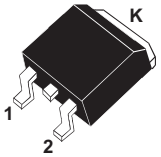


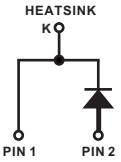
TO-220AC (MBR10100)





ITO-220AC (MBRF10100)





TO-263AB (MBRH10100)

TYPICAL APPLICATIONS

- Switching mode power supply
- DC-to-DC converters
- Freewheeling diodes
- Polarity protection.

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, TO-263AB
Molding compound meets UL 94 V-O flammability rating

Terminals: Mat tin plated leads, solderable per J-STD-002 and JESD 22-B102

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERRISTICS	
$I_{F(AV)}$	10A
V_{RRM}	100V
I_{FSM}	150A
V_F	0.65V
$T_{J\,max.}$	150ºC

MAJOR RATINGS AND CHARACTERISTICS (T_C = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Working peak reverse voltage	V_{RWM}	100	V
Maximum DC blocking voltage	V_{DC}	100	V
Maximum average forward rectified output current at T_c = 133 C	$I_{F(AV)}$	10	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150	A
Non-repetitive avalanche energy at T_J= 25°C, L = 60 mH	E_{AS}	130	mJ
Peak repetitive reverse current at t_p = 2µs, 1 kHz, T_J = 38°C ± 2°C	I_{RRM}	0.5	A
Voltage rate of change (rated V_R)	dV/dt	10000	V/µs
Isolation voltage (ITO-220AC only) From terminal to heatsink t = 1 min	V_{AC}	1500	V
Operating junction storage temperature range	T_J,T_{STG}	-65 to +150	ºC

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**VALUE**	**UNIT**
Maximum instantaneous forward voltage (1)	I_F = 10A	T_C = 25°C	V_F	0.8	V
	I_F = 10A	T_C = 125°C		0.65	
	I_F = 20A	T_C = 125°C		0.75	
Maximum reverse current at working peak reverse voltage(2)		T_J = 25°C	I_R	100	μA
		T_J = 100°C		6	mA

Notes

(1) Pulse test : 300μs pulse width, 1% duty cycle

(2) Pulse test : Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MBR**	**MBRFXX**	**MBRHXX**	**UNIT**
Typical thermal resistance (junction-ambient)	$R_{\theta JA}$	60	-	60	°C/W
Typical thermal resistance (junction-case)	$R_{\theta JC}$	2	3.5	2	
Approximate weight		2	2.5	2	g

Ordering Information Table

Device code

MBR	F	10	100
①	②	③	④

① - Schottky MBR series

② - Package outline, none for TO-220AC
"F" for ITO-220AC (TO-220F)
"H" for TO-263AB (D^2PAK)

③ - Current rating, 10 = 10A

④ - Voltage rating, 100 = 100V

Fig.1 Forward current derating curve

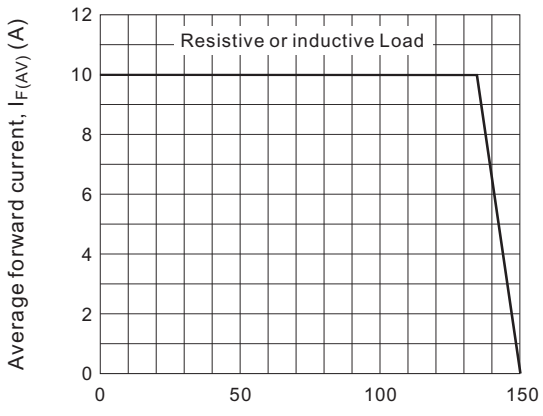


Fig.2 Maximum non-repetitive peak forward surge current

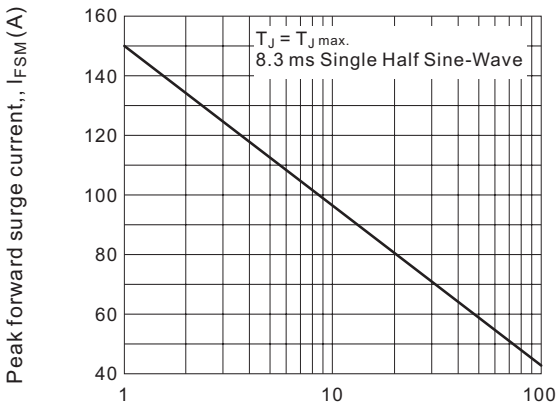


Fig.3 Typical instantaneous forward characteristics

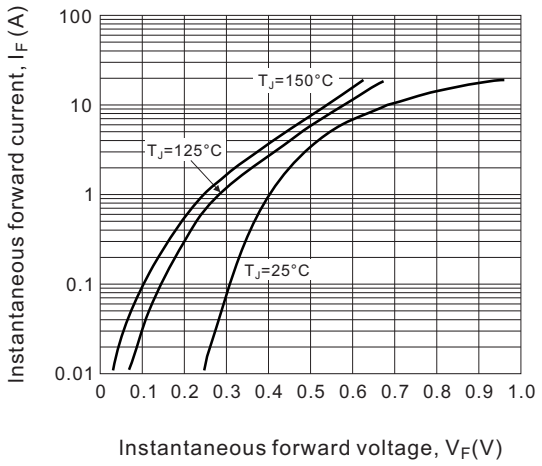


Fig.4 Typical reverse characteristics

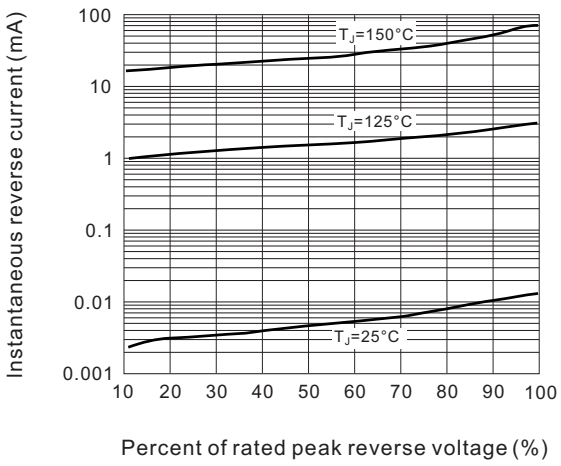


Fig.5 Typical junction capacitance

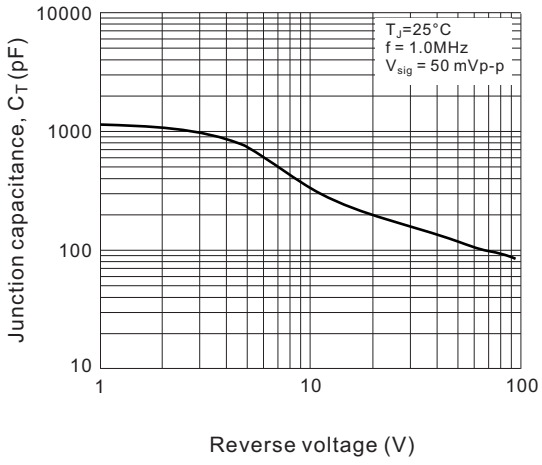


Fig.6 Typical transient thermal Impedance

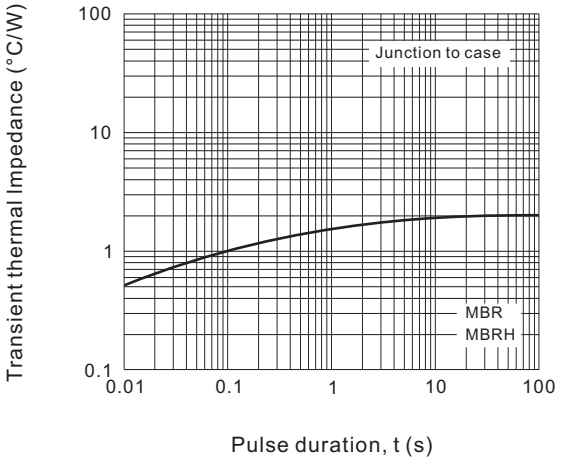
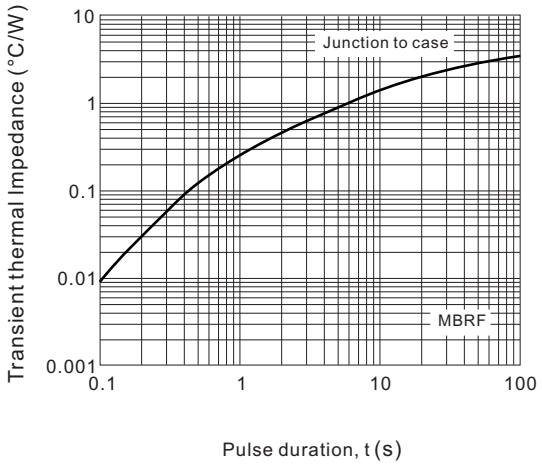
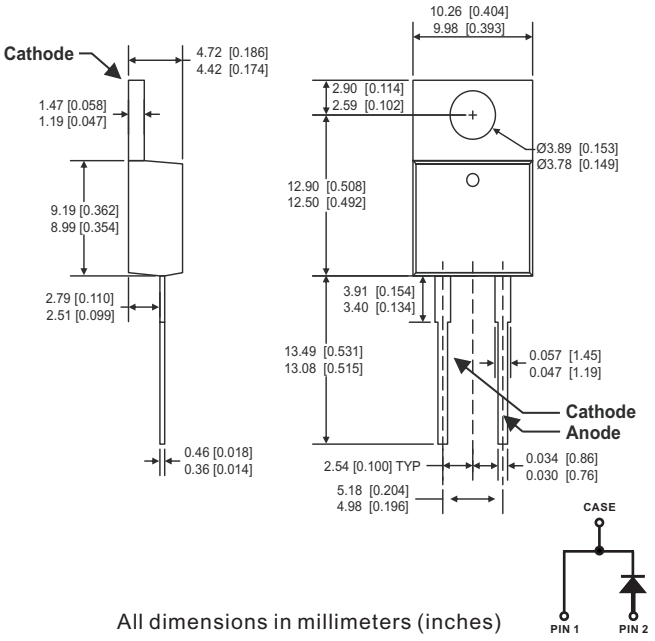


Fig.7 Typical transient thermal Impedance

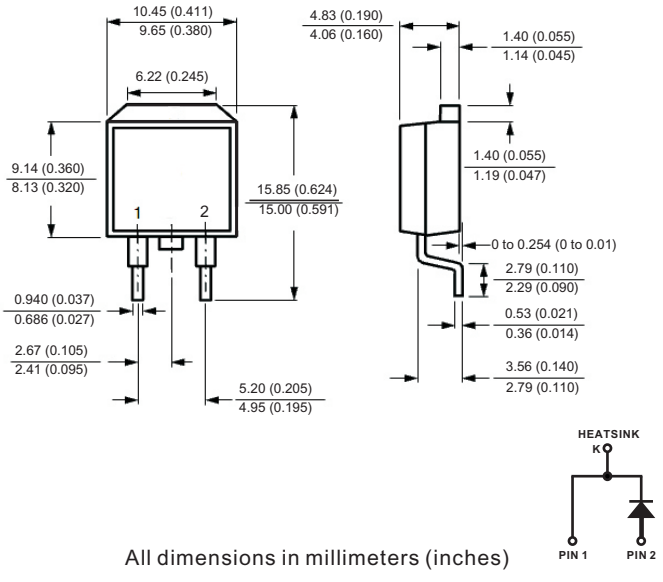


TO-220AC(MBR10100)



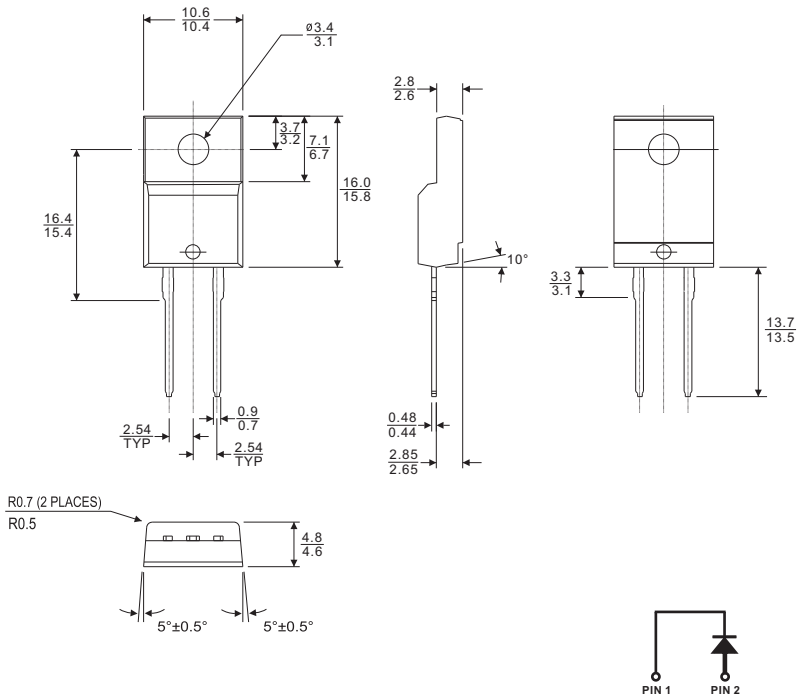
All dimensions in millimeters (inches)

TO-263AB(MBR10100H)



All dimensions in millimeters (inches)

ITO-220AC (MBR10100F)



All dimensions in millimeters (inches)