MBR60L45CTW

List

MBR60L45CTW

60A Power Low VF Schottky Barrier Rectifier 45V

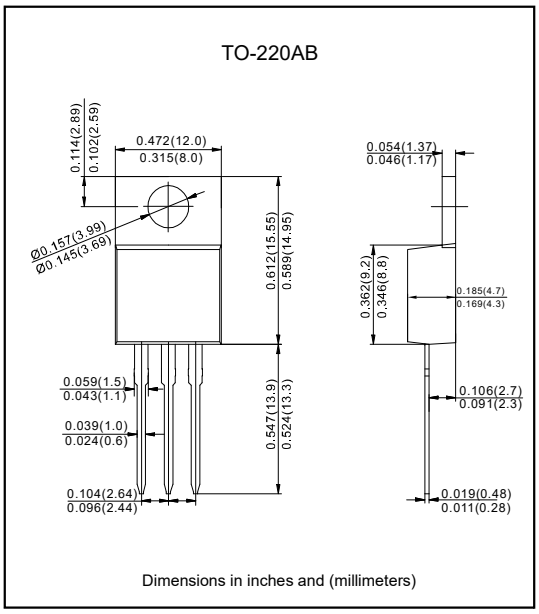
Features

- Ultra low V_F.
- High efficiently operation.
- Low power loss.
- Low stored charge majority carrier conduction.
- High forward surge capability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates halogen-free parts, ex. MBR60L45CTW-H.

Mechanical data

- Case : Molded plastic, TO-220AB.
- Leads : Solder able per MIL-STD-202, Method 208 .
- Terminals : Puretin plated.
- Polarity : Polarity symbol marking on body.
- Weight : Approximated 1.85 grams.

Package outline



Maximum ratings (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Units
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum RMS voltage	V_{RMS}	31.5	V
Maximum DC blocking voltage	V_{DC}	45	V
Maximum average forward rectified per device	$I_{(AV)}$	60	A
Maximum average forward rectified per diode		30	
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	450	A
Typical thermal resistance per diode (Note 1)	$R_{\theta JC}$	2	°C/W
Operating junction temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Note : 1. Thermal resistance from junction to case.

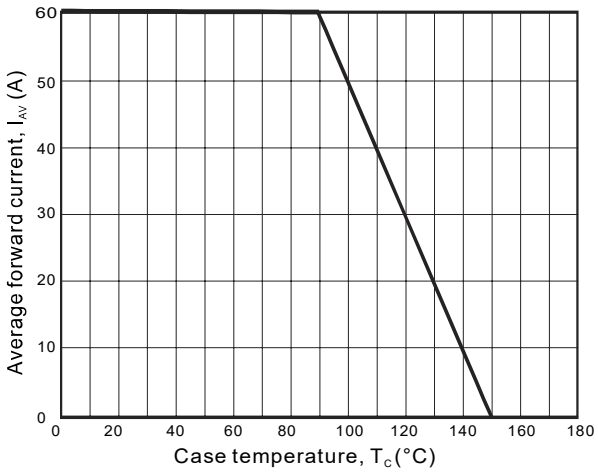
MBR60L45CTW

Electrical characteristics (At T_A=25°C unless otherwise noted)

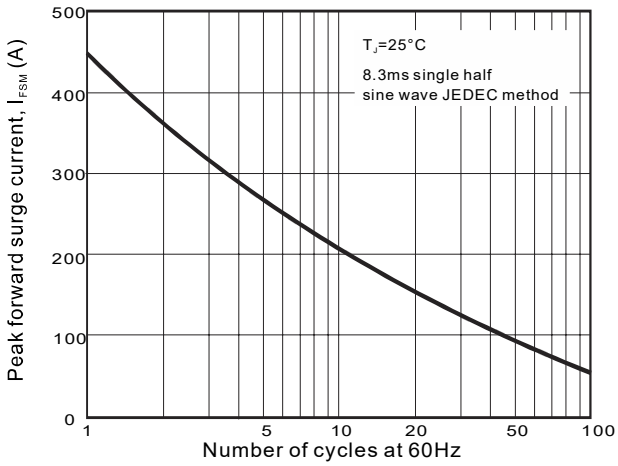
Parameter	Conditions	Symbols	Min.	Typ.	Max.	Units
Breakdown voltage per diode	I_R=0.5mA	V_{BR}	45			V
Instantaneous forward voltage per diode	I_F=5A, T_J=25°C	V_F		0.34		V
	I_F=15A, T_J=25°C			0.42		
	I_F=30A, T_J=25°C			0.50	0.55	
	I_F=30A, T_J=125°C				0.51	V
Reverse current per diode	V_R=45V, T_J=25°C	I_R			300	μA
	V_R=45V, T_J=125°C			200	400	mA

Rating and characteristic curves

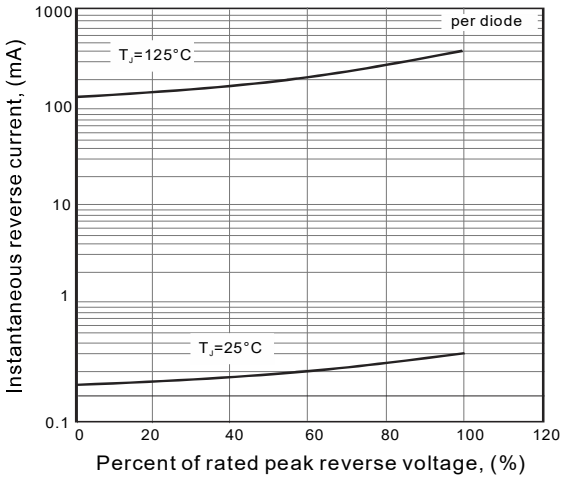
Typical forward current derating curve



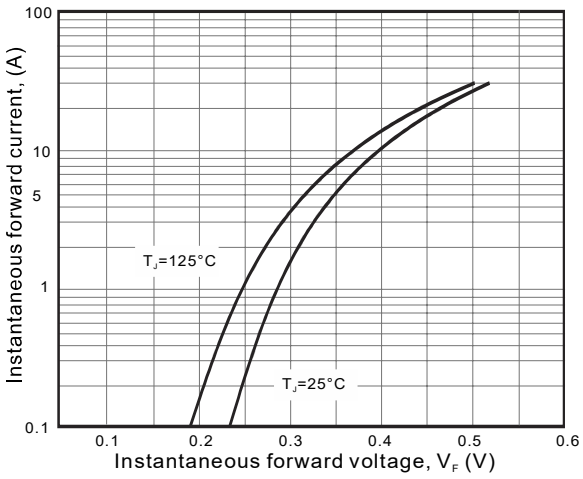
Maximum non-repetitive forward surge current



Typical reverse characteristics

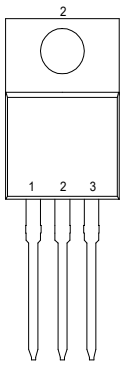
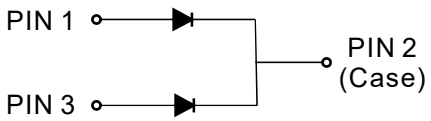


Typical instantaneous forward characteristics



MBR60L45CTW

Pinning information

Pin	Simplified outline	Symbol
Pin1 Anode Pin2 Cathode Pin3 Anode		

Marking

Type number	Marking code
MBR60L45CTW	MBR60L45CTW

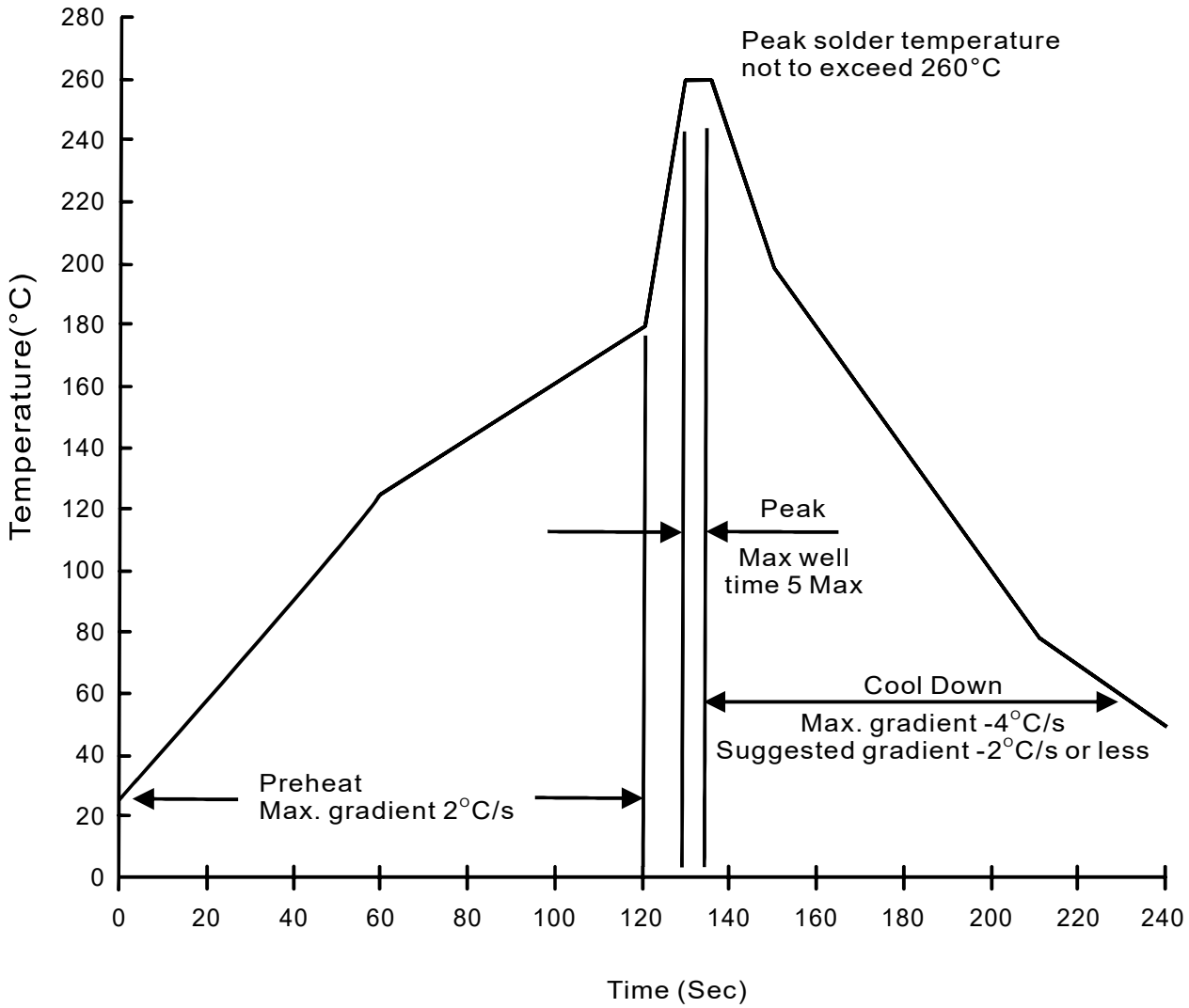
Tube packing

TYPE NUMBER	PACKAGE	TUBE (pcs)	BOX (pcs)
MBR60L45CTW	TO-220AB	50	2,000

MBR60L45CTW

Suggested thermal profiles for soldering processes

1.Lead free temperature profile wave-soldering



MBR60L45CTW

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_J=150°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°C, I_F = I_O On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031