MBR40L80FCTW

List

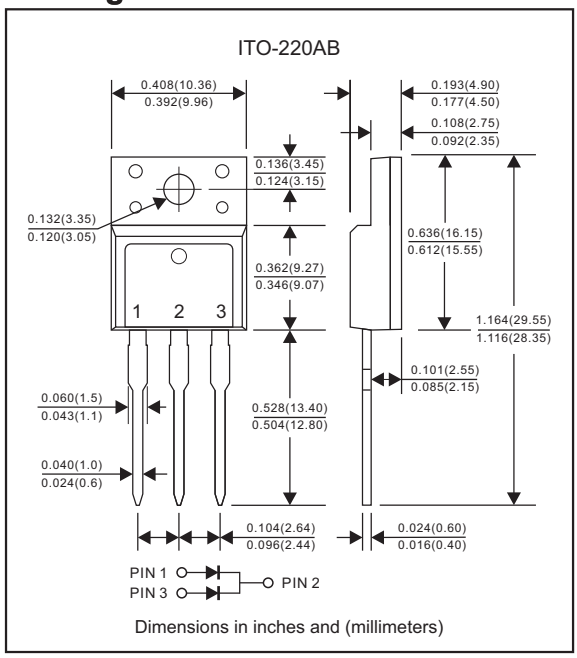
MBR40L80FCTW

40A Power Low VF
Schottky Barrier Rectifiers 80V

Features

- High current density schottky.
- 150°C operating junction temperature.
- Offer 20A half wave and 40A full wave rectification.
- Low power loss, high efficiency.
- Low forward voltage drop.
- High current capability
- High surge capability.
- Guardring for overvoltage protection.
- Low stored charge majority carrier conduction
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex.MBR40L80FCTW-H.

Package outline



Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : JEDEC ITO-220AB molded plastic body over passivated chip
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 1.70 gram

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

PARAMETER	Symbol	MBR40L80FCTW	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	80	Volts
Maximum RMS voltage	V_{RMS}	56	Volts
Maximum DC blocking voltage	V_{DC}	80	Volts
Maximum average forward rectified current per device per diode	I_O	40 20	A
Peak forward surge current 8.3ms single half sine-wave	I_{FSM}	400	A
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

PARAMETER			Symbol	MBR40L80FCTW	Unit
Forward voltage per diode	at I_F = 20A	T_J=25 °C	V_F	0.65	Volts
		T_J=100 °C		0.62(Typ.)	
Reverse current per diode	at V_R = 56V	T_J=25 °C	I_R	0.03(Typ.)	mA
	at V_R = 80V	T_J=25 °C		0.1	
		T_J=100 °C		16	

Thermal characteristics

PARAMETER	Symbol	MBR40L80FCTW	Unit
Typical thermal resistance	$R_{\theta JC}$	4.5	°C/W

Rating and characteristic curves (MBR40L80FCTW)

Fig.1 FORWARD CURRENT DERATING CURVE

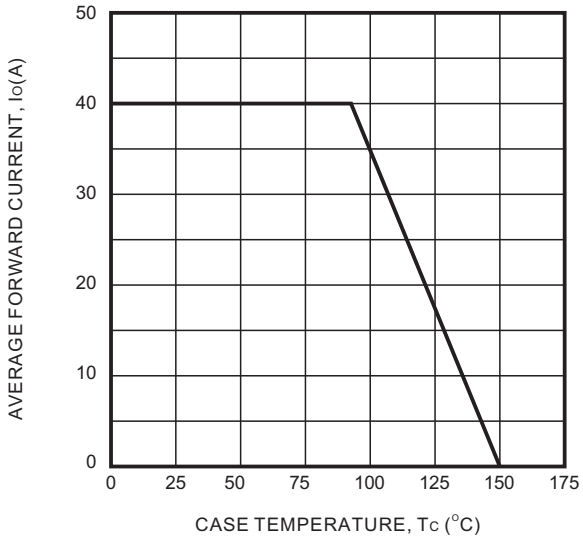


Fig.2 TYPICAL FORWARD CHARACTERISTICS

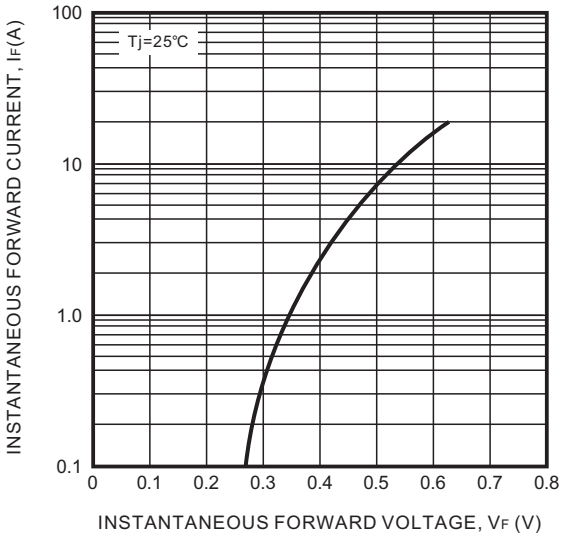


Fig.3 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

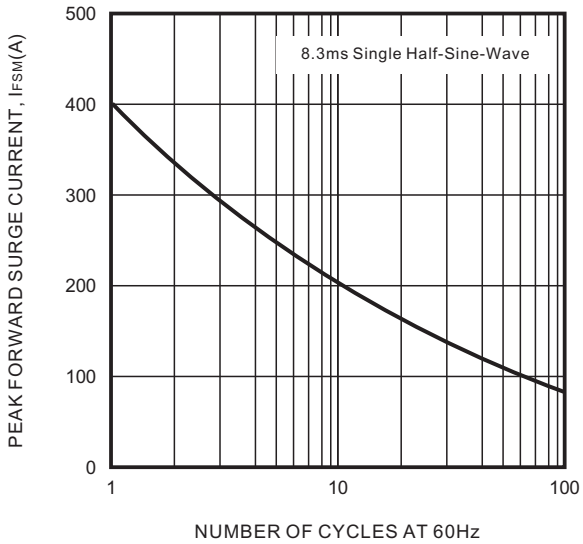
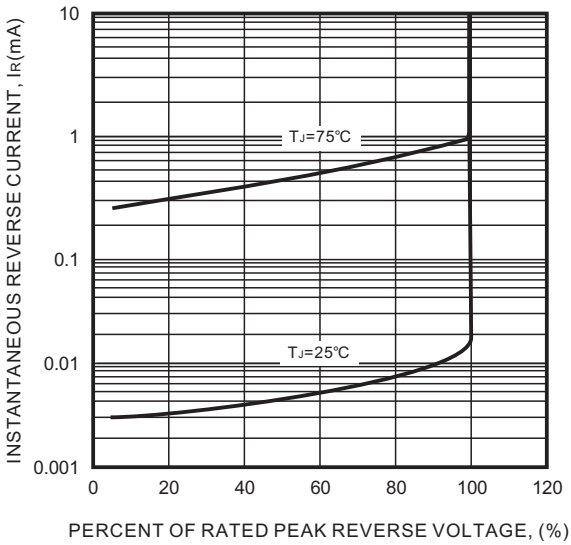


Fig.4 TYPICAL REVERSE CHARACTERISTICS



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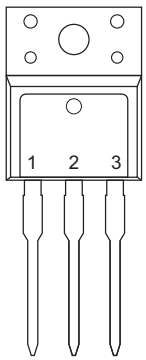
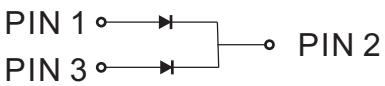
Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

Marking

Type number	Marking code
MBR40L80FCTW	MBR40L80FCTW

Tube packing

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	BOX (pcs)	INNER BOX (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
ITO-220AB	50	525*31.9*6.4	1000	545*150*45	575*245*170	5,000	15.0

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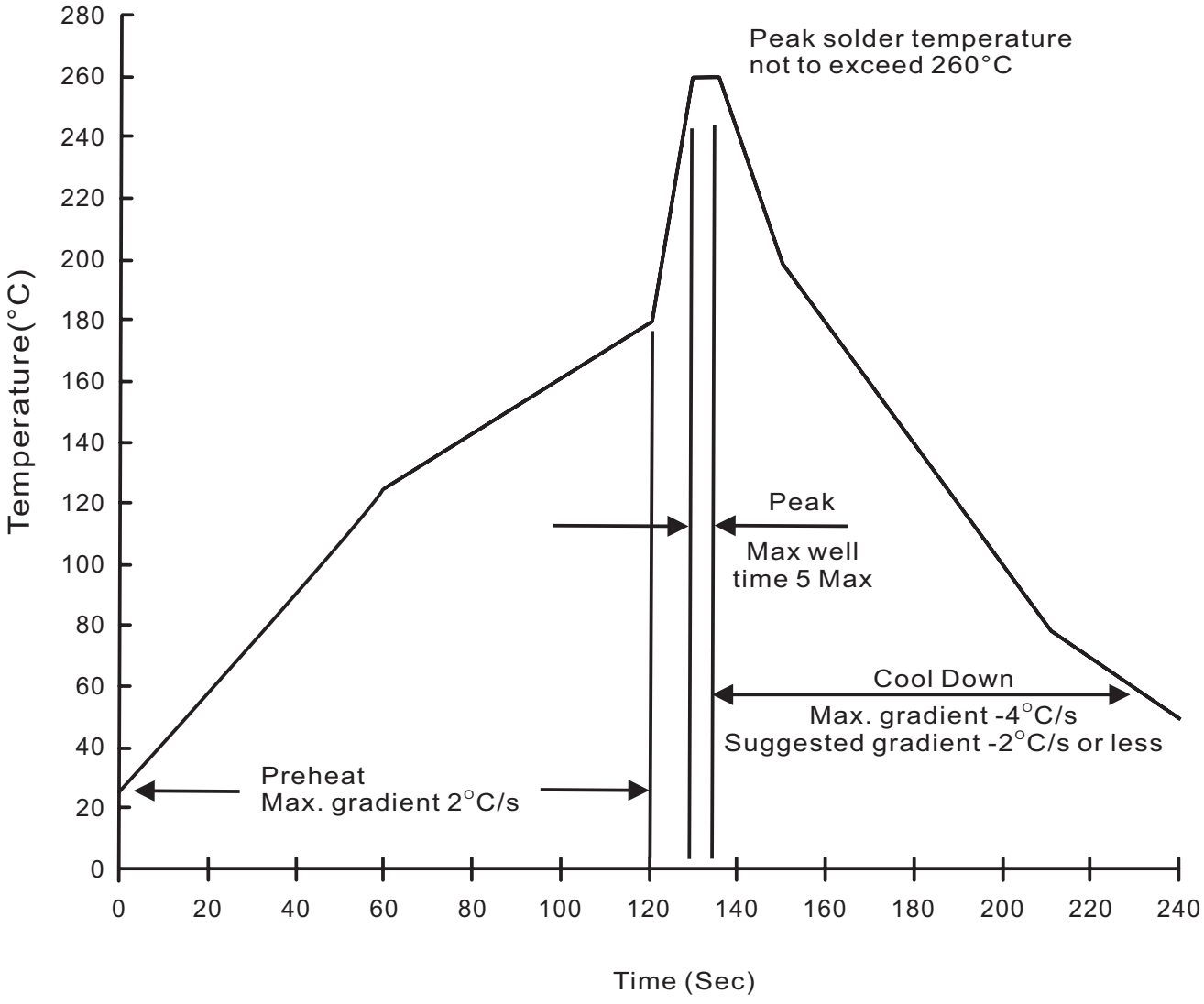
Suggested thermal profiles for soldering processes

1.Lead free temperature profile wave-soldering



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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 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031