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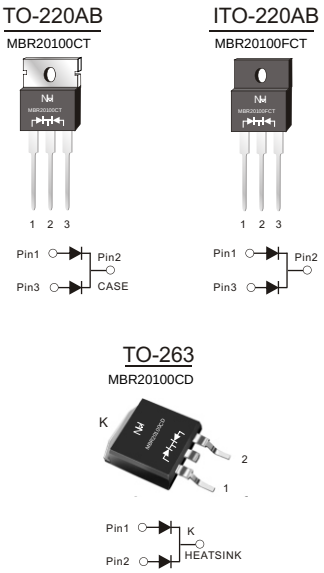
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Pb-Free

RoHS COMPLIANT

VOLTAGE 20~200Volts **CURRENT** 20 Amperes

TO-220AB/ITO-220AB/TO-263 Unit:(mm)



FEATURES

- Power pack
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL Level 1，per J-STD-020, LF MAX peak of 245℃（for TO-263 package）
- Solder bath temperature 275℃ maximum，10s，per JESD22-B106（for TO-220AB and ITO-220AB package）
- Component in accordance to RoHS 2011/65/EU

MECHANICAL DATA

- Case: JEDEC TO-220AB、ITO-220AB、TO-263
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

TYPICAL APPLICATIONS

For use in low voltage ,high frequency inverters ,DC/DC converters, free wheeling ,and polarity protection applications

Maximum Ratings and Electrical Characteristcs

(Ratings at 25℃ ambient temperature unless otherwise specified)

		Symbols	MBR 2020CT /FCT /CD	MBR 2030CT /FCT /CD	MBR 2040CT /FCT /CD	MBR 2050CT /FCT /CD	MBR 2060CT /FCT /CD	MBR 2080CT /FCT /CD	MBR 20100CT /FCT /CD	MBR 20150CT /FCT /CD	MBR 20200CT /FCT /CD	Units
Maximum repetitive peak reverse voltage		V_{RRM}	20	30	40	50	60	80	100	150	200	Volts
Maximum RMS voltage		V_{RMS}	14	21	28	35	42	56	70	105	140	Volts
Maximum DC blocking voltage		V_{DC}	20	30	40	50	60	80	100	150	200	Volts
Maximum average forward rectified current(see Fig.1)	Per leg	$I_{(AV)}$	10.0									Amps
	Total device		20.0									
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)		I_{FSM}	200.0									Amps
Maximum instantaneous forward voltage at 20.0 A		V_F	0.60			0.75		0.85		0.90	0.95	Volts
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1)	T_c=25℃	I_R	0.2									mA
	T_c=125℃		30			50						
Typical thermal resistance (Note 2)		$R_{\theta JC}$	3.0									℃/W
Operating junction temperature range		T_J	-65 to+150									℃
Storage temperature range		T_{STG}	-65 to+150									℃

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle
2.Pulse test: pulse width≤40ms

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RATINGANDCHARACTERISTICCURVES

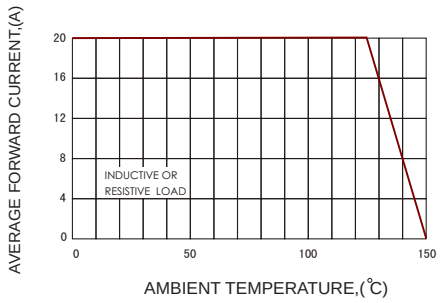


Fig.1 FORWARD CURRENT DERATING CURVE

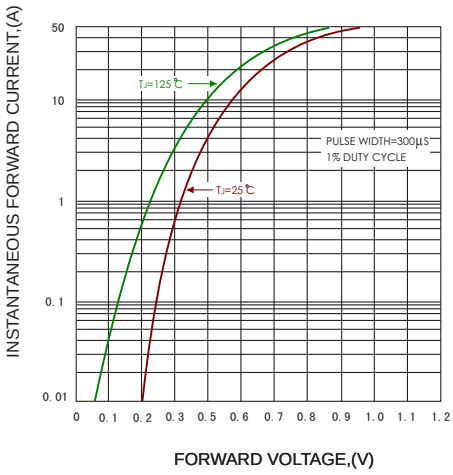


Fig.2-TYPICAL INSTANTANEOUS FORWARD

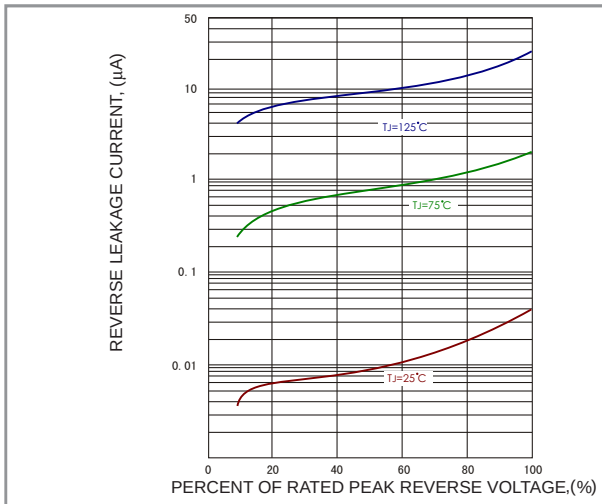


Fig.3 TYPICAL REVERSE CHARACTERISTICS

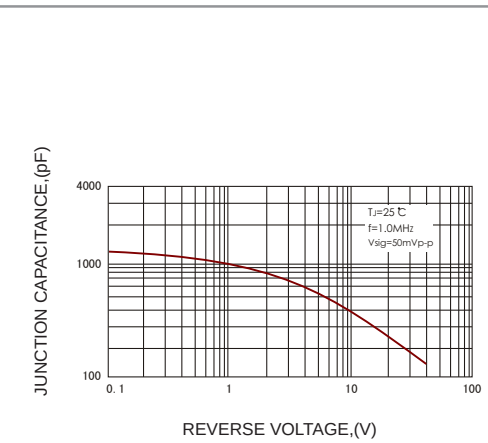


Fig.4 TYPICAL JUNCTION CAPACITANCE

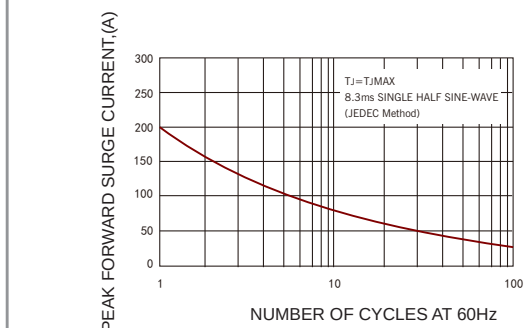


Fig.5- MAXIMUM NON - REPETITIVE SURGE CURRENT

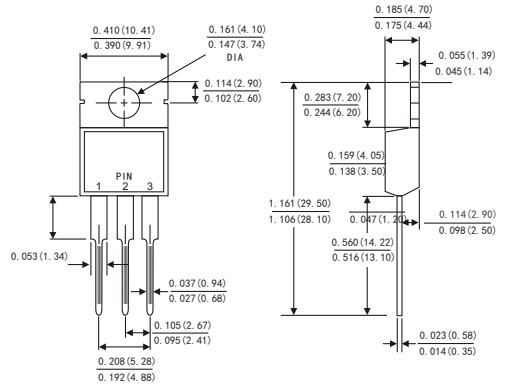
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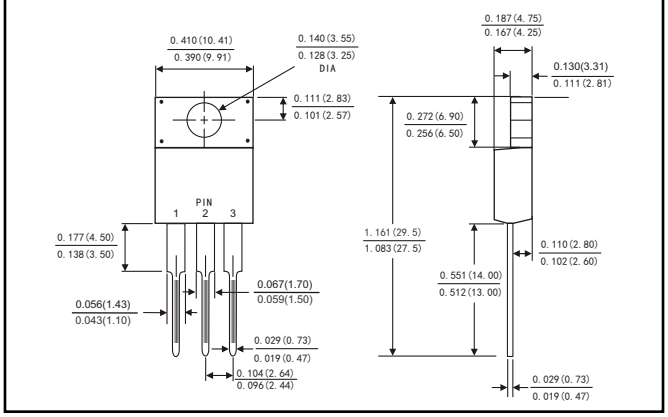
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OUTLINE DRAWINGS

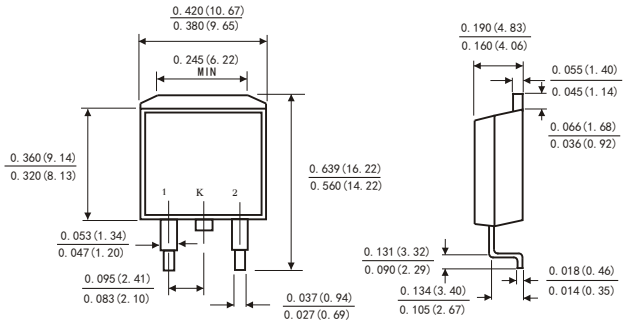
TO-220AB



ITO-220AB

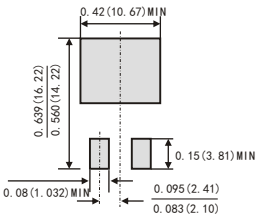


TO-263



Suggested Pad Layout

(TO-263)



• Thermal Characteristcs (Ratings at 25℃ ambient temperature unless otherwise specified)

Parameter	Symbol	TO-220AB	ITO-220AB	TO-263	Unit
Typical thermal resistance 3)	RθJC	2. 5	4. 5	2. 5	℃/W

3.Thermal resistance from junction to case

• Packing Information

Product code	Pack	Box Size L×W×H (mm)	Quantity (pcs/box)	Carton SizeL×W×H (mm)	Quantity (box/carton)
TO-220AB	P/T	550×150×40	1000	580×230×175	5
ITO-220AB	P/T	550×150×40	1000	580×230×175	5
TO-263	P/T	550×150×40	1000	580×230×175	5

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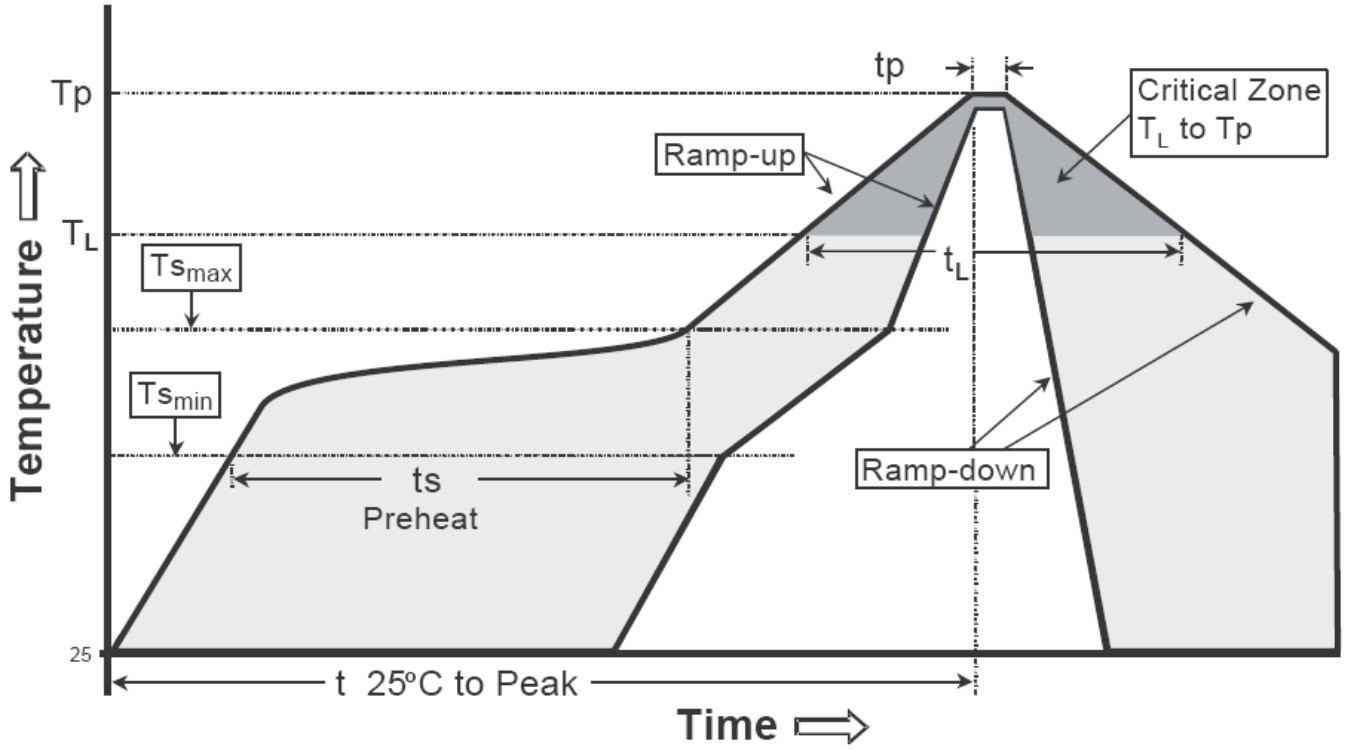
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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