

# MBR3040FCT THRU MBR30200FCT

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# MBR3040FCT THRU MBR30200FCT

## 30A High Barrier Power Schottky Rectifiers - 40V-200V

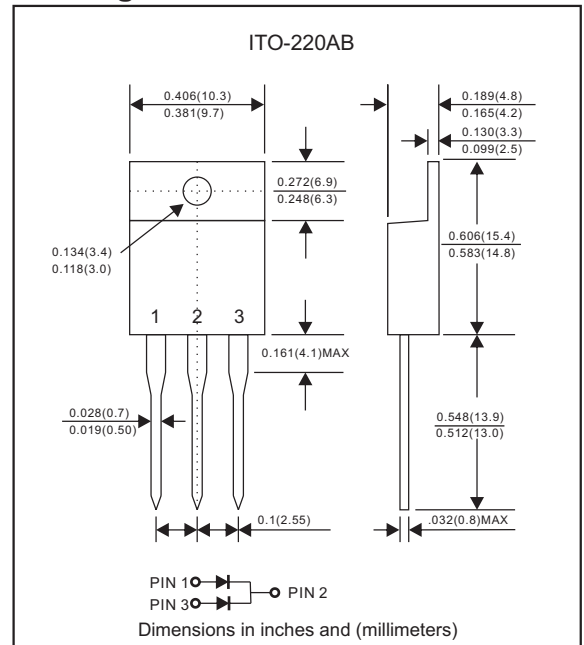
### Features

- Low power loss, high efficiency.
- High current capability
- High surge capability.
- Guardring for overvoltage protection.
- Low stored charge majority carrier conduction
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. MBR3040FCT-H.

### 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 guaranteed
- Polarity: As marked
- Mounting Position : Any
- Weight : Approximated 1.70 gram

### Package outline



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

PARAMETER	SYMBOLS	MBR 3040FCT	MBR 3045FCT	MBR 3050FCT	MBR 3060FCT	MBR 3080FCT	MBR 30100FCT	MBR 30150FCT	MBR 30200FCT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	40	45	50	60	80	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	28	31.5	35	42	56	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	40	45	50	60	80	100	150	200	V
Maximum average forward rectified current Per device	$I_o$	30								A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	$I_{FSM}$	200								A
Operating junction temperature range	$T_J$	-55 to +150					-55 to +175			$^\circ\text{C}$
Storage temperature range	$T_{STG}$	-65 to +175								$^\circ\text{C}$

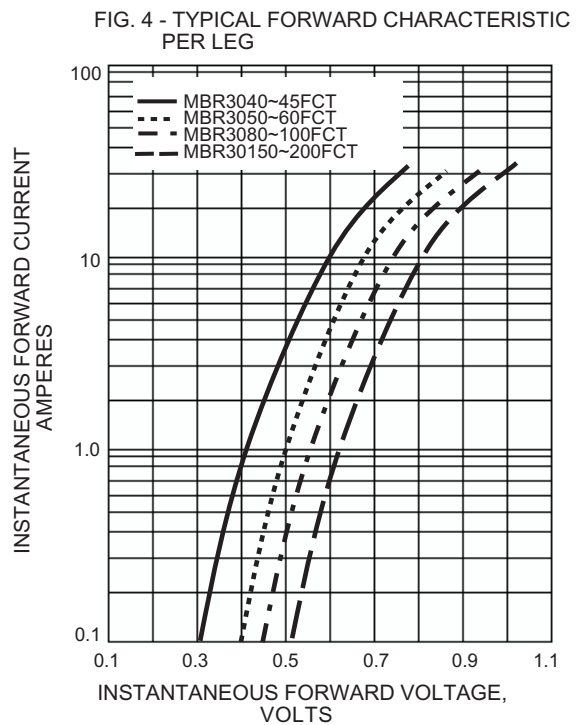
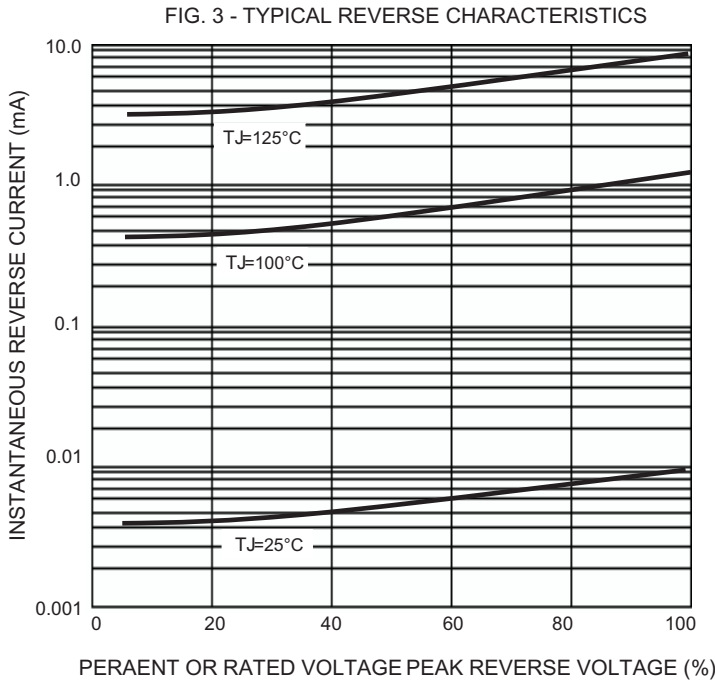
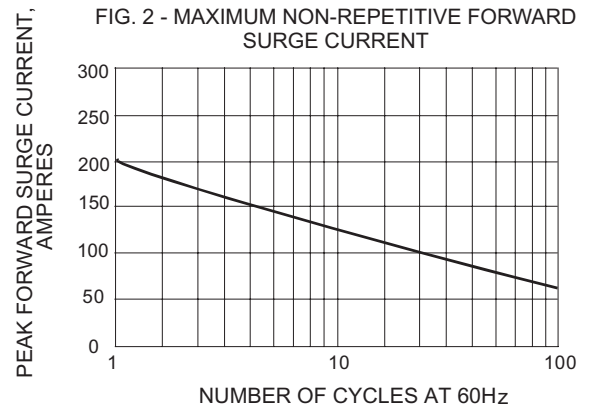
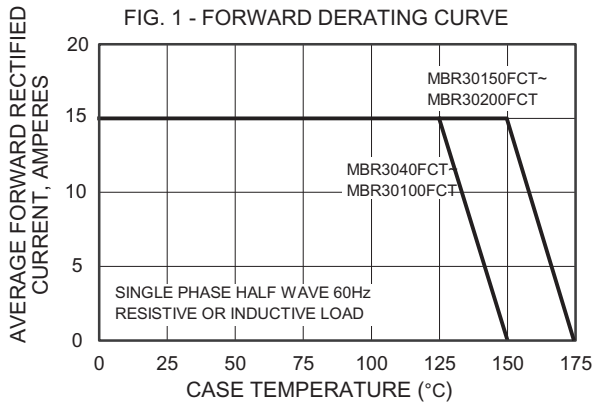
### Electrical characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOLS	MBR 3040FCT	MBR 3045FCT	MBR 3050FCT	MBR 3060FCT	MBR 3080FCT	MBR 30100FCT	MBR 30150FCT	MBR 30200FCT	UNIT
Maximum forward voltage per leg at $I_F=15\text{A}$ at $I_F=30\text{A}$	$V_F$	0.65 0.84		0.75 0.85		0.85 0.95		0.95 1.00		V V
Maximum DC reverse current at $T_J=25^\circ\text{C}$ at rated DC blocking voltage at $T_J=125^\circ\text{C}$	$I_R$	0.05 15				0.01 15				mA mA

### Thermal characteristics

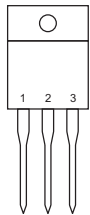
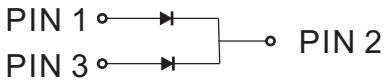
PARAMETER	SYMBOLS	MBR 3040FCT	MBR 3045FCT	MBR 3050FCT	MBR 3060FCT	MBR 3080FCT	MBR 30100FCT	MBR 30150FCT	MBR 30200FCT	UNIT
Typical thermal resistance junction to case per leg	$R_{\theta JC}$	2.0								$^\circ\text{C}/\text{W}$

## Rating and characteristic curves (MBR3040FCT THRU MBR30200FCT)



# MBR3040FCT THRU MBR30200FCT

## Pinning information

Pin	Simplified outline	Symbol
Pin1 anode Pin2 cathode Pin3 anode		

## Marking

Type number	Marking code
MBR3040FCT	MBR3040FCT
MBR3045FCT	MBR3045FCT
MBR3050FCT	MBR3050FCT
MBR3060FCT	MBR3060FCT
MBR3080FCT	MBR3080FCT
MBR30100FCT	MBR30100FCT
MBR30150FCT	MBR30150FCT
MBR30200FCT	MBR30200FCT

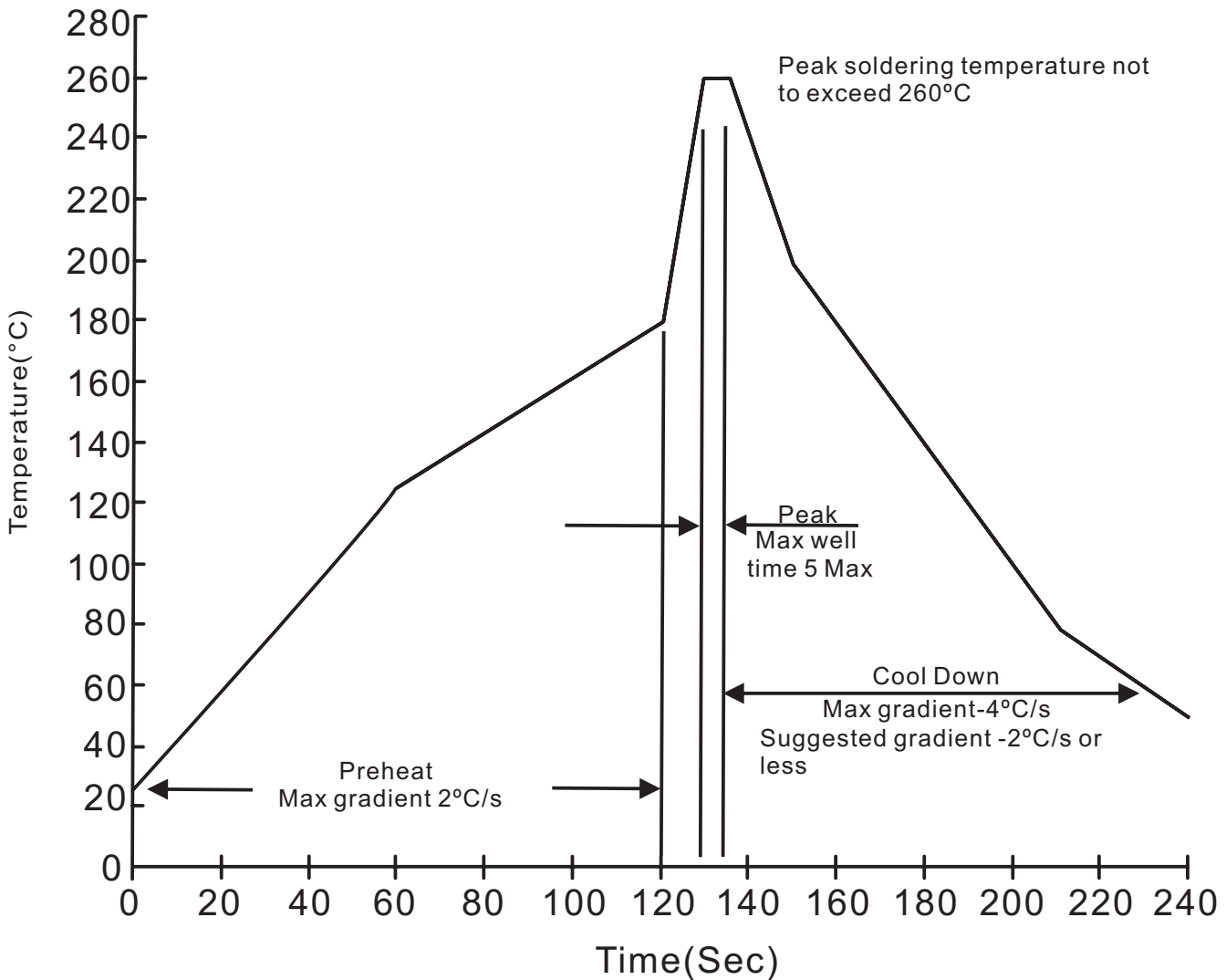
## Tube packing

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*32*7.0	1,000	555*150*40	580*230*175	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 $260 \pm 5^\circ\text{C}$ for $10 \pm 2$ sec. immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$ , $I_F = I_O$ 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 $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	$-55^\circ\text{C}$ to $+125^\circ\text{C}$ 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 $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at $175^\circ\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031