

40-Ampere, 45-200 Voltage Schottky Barrier Metal-Silicon Rectifiers

■ **Features**

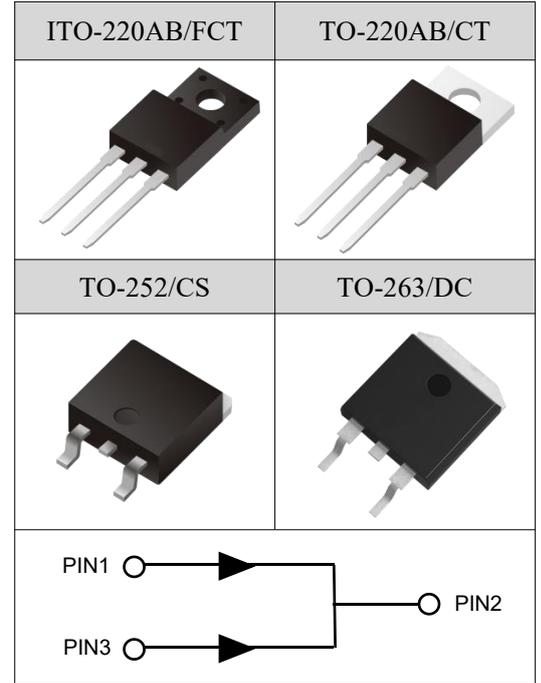
- Metal silicon junction
- Low power loss and high efficiency
- Super fast reverse recovery time
- High surge current capability
- The plastic case material has UL flammability classification rating 94V-0

■ **Mechanical Data**

- Polarity: As marked
- Lead free complies with the EU ROHS directive
- Terminals: Tin plated leads, solderable per Mil-STD-750 Method 2026

■ **Typical applications**

- For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, and telecommunication.



■ **Maximum Ratings @ Ta = 25°C unless otherwise noted**

PARAMETER		SYMBOL	MBR4045***	MBR40100***	MBR40150***	MBR40200***	UNIT
Maximum recurrent peak reverse voltage		V_{RRM}	45	100	150	200	V
Maximum RMS voltage		V_{RSM}	31.5	70	105	140	V
Maximum DC Blocking Voltage		V_{DC}	45	100	150	200	V
Maximum average forward rectified current	Per diode	I_{FM}	20				A
	Per device	I_{FM}	40				
Peak forward surge current 8.3 ms single half sine wave superimposed on rated load		I_{FSM}	300				A
Peak forward surge current 1.0 ms single half sine wave superimposed on rated load			600				A
Current squared time @1ms≤t<8.3ms Tj=25°C, Rating of per diode		I^2t	373.5				A²S
Maximum instantaneous forward voltage @IF=IFM (Per diode)		V_F	0.7	0.85	0.90	0.95	V
Maximum DC reverse current at rated DC blocking voltage	Tj=25°C	I_R	0.2				mA
	Tj=100°C	I_R	20				mA
Junction temperature range		T_j	-55~+150				°C
Storage temperature range		T_{STG}	-55~+150				°C

■ Characteristic Curve

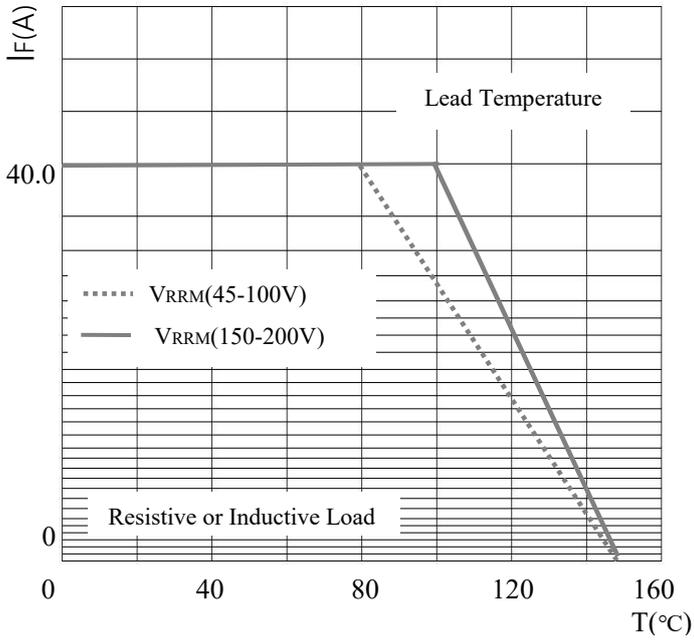


FIG1. Forward Current Derating Curve

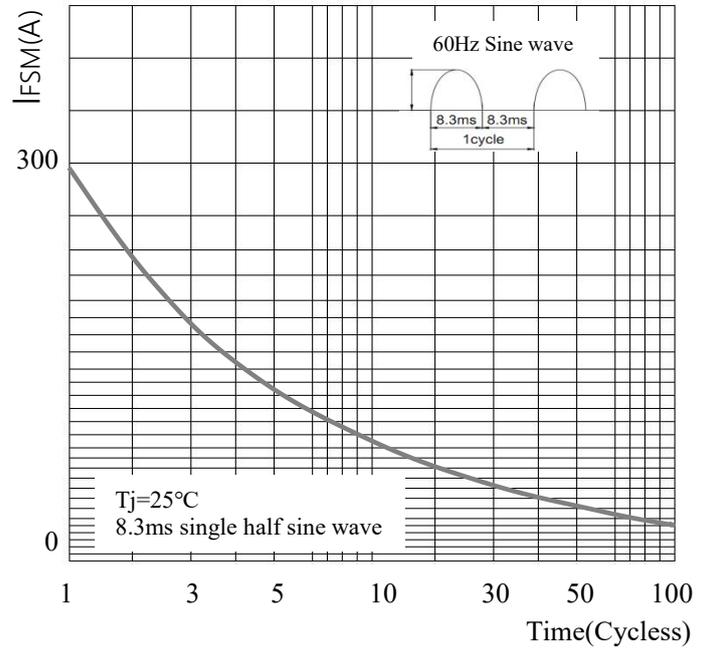


FIG2. Maximum Non-Repetitive Peak Forward Surge Current

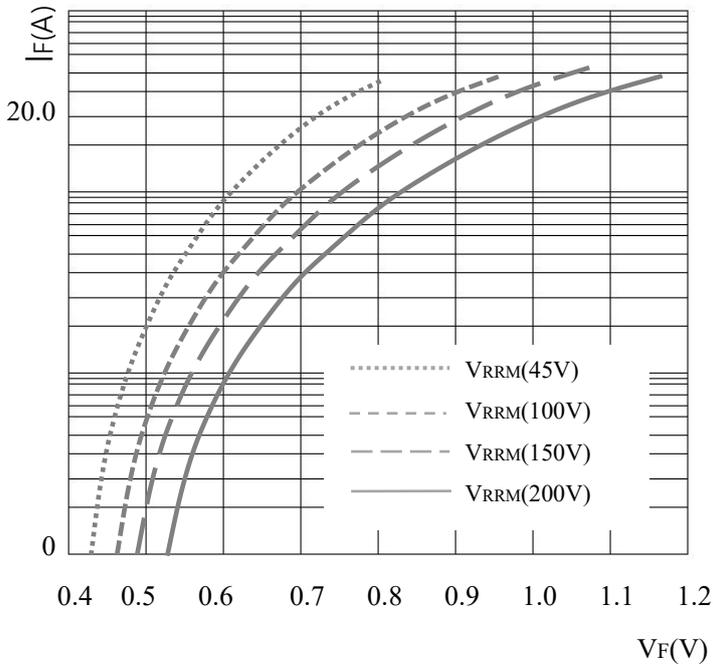


FIG3. Typical Forward Voltage Characteristics

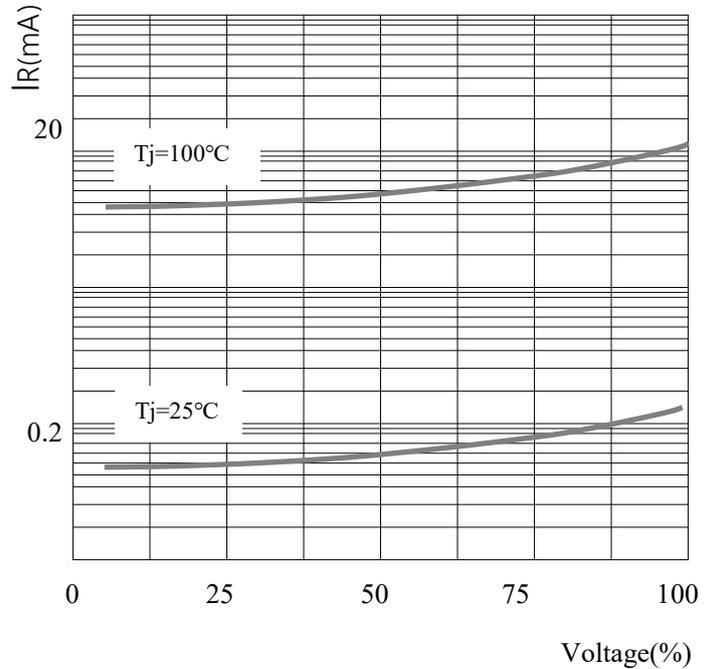
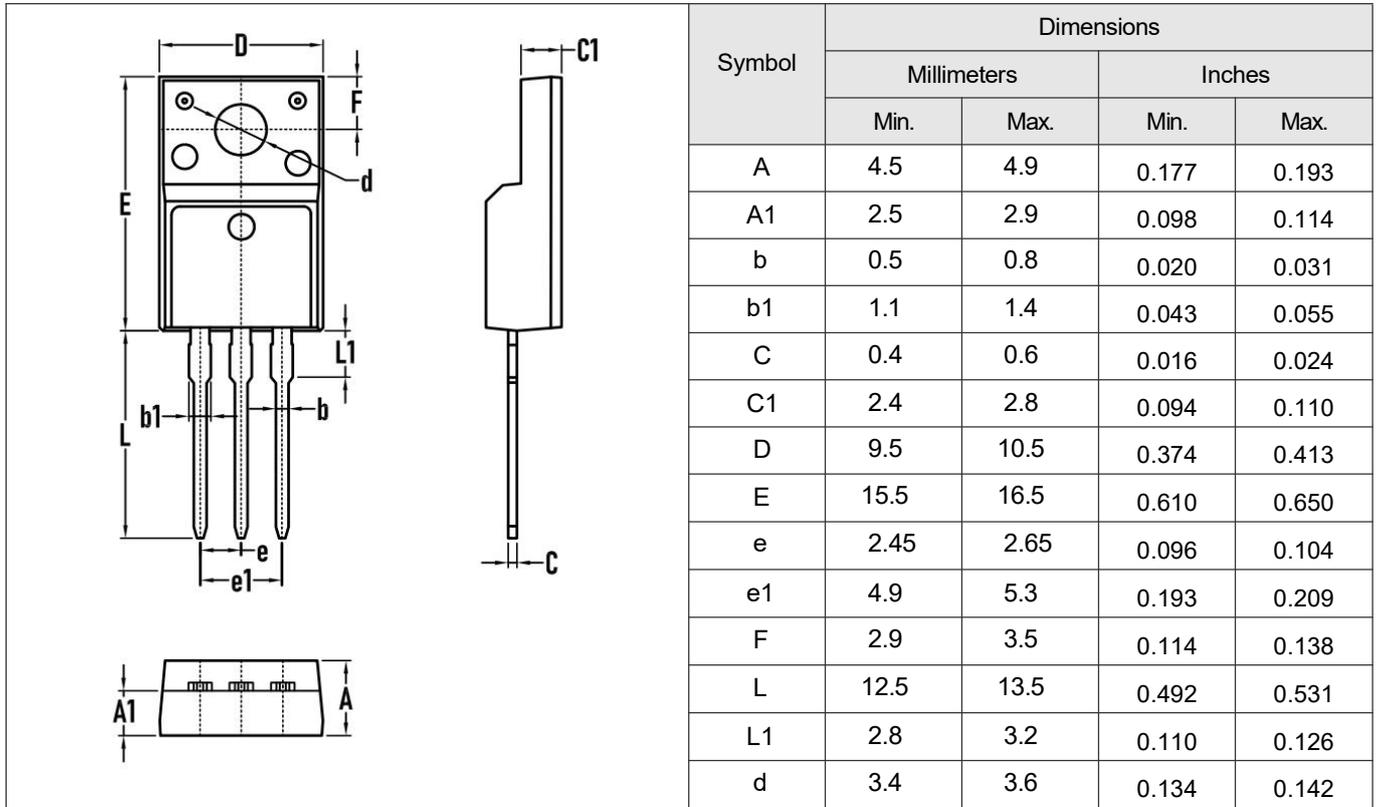
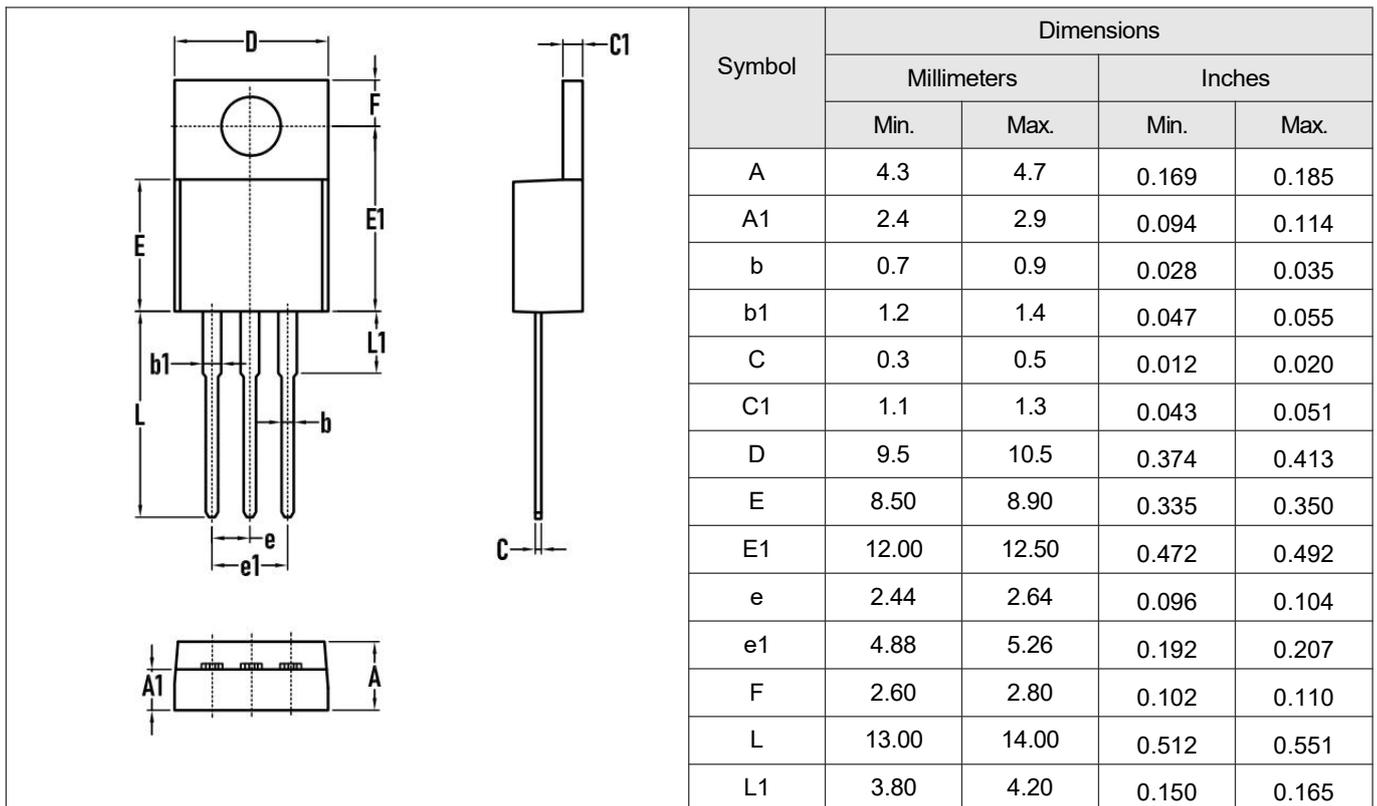


FIG4. Typical Reverse Characteristics

■ Package Outline Dimensions (TO-220F)



■ Package Outline Dimensions (TO-220AB)



■ Package Outline Dimensions (TO-252)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.1	2.6	0.083	0.102
A1	-	0.15	-	0.006
A2	2.0	2.5	0.079	0.098
B	1.1	1.6	0.043	0.063
b	0.5	0.8	0.020	0.031
b1	0.6	0.9	0.024	0.035
C	0.3	0.6	0.012	0.024
C1	0.3	0.6	0.012	0.024
D	6.1	6.7	0.240	0.264
D1	5.0	5.6	0.197	0.220
E	5.2	5.8	0.205	0.228
e	2.1	2.5	0.083	0.098
e1	4.2	4.9	0.165	0.193
L	9.5	10.5	0.374	0.413
L1	2.5	3.5	0.098	0.138
L2	1.2	1.8	0.047	0.071
L3	0.8	1.5	0.031	0.059
θ	0°	10°	0°	10°

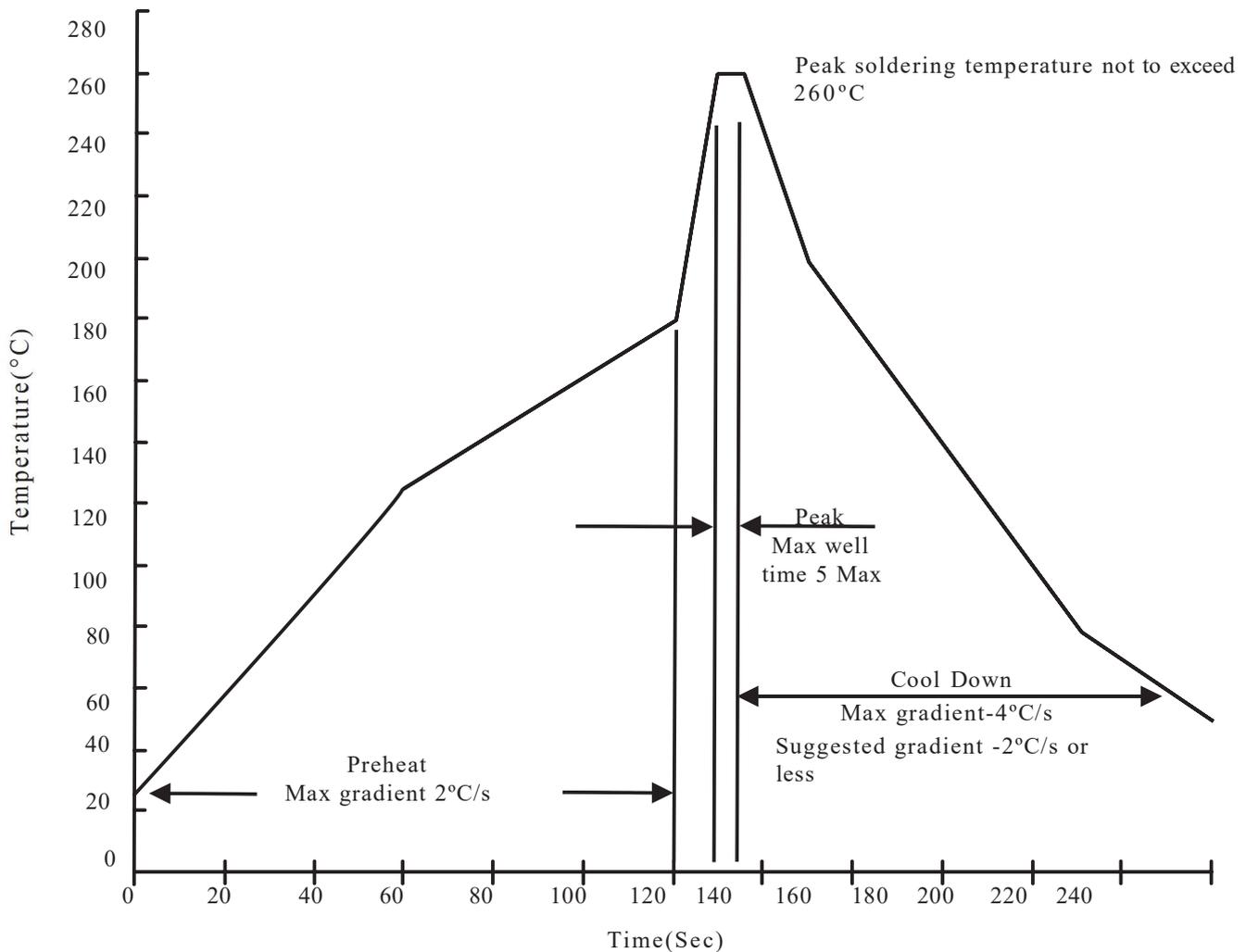
■ Package Outline Dimensions (TO-263)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	0	0.3	0.000	0.012
B	1.3	1.4	0.051	0.055
b	0.7	0.8	0.028	0.031
b1	1.3	1.5	0.051	0.059
b2	0.7	0.8	0.028	0.031
C	4.4	4.7	0.173	0.185
C1	1.1	1.3	0.043	0.051
C2	2.5	2.8	0.098	0.110
C3	0.3	0.4	0.012	0.016
D	9.5	10.5	0.374	0.413
E	9.5	10.5	0.374	0.413
e	2.4	2.6	0.094	0.102
L	13.5	16.0	0.531	0.630
L1	4.5	5.5	0.177	0.217
L2	2.0	3.0	0.079	0.118
L3	1.0	1.6	0.039	0.063
θ	5°	10°	5°	10°

■ **Ordering information**

Package	Order code	Base quantity	Box quantity	Carton quantity
TO-220F/ITO-220AB	MBR20***FCT	50pcs/tube	1000pcs/box	5000pcs/cartoon
TO-220/TO-220AB	MBR20***CT	50pcs/tube	1000pcs/box	5000pcs/cartoon
TO-263	MBR20***DC	800pcs/reel	1600pcs/box	8000pcs/cartoon
TO-252	MBR20***CS	2500pcs/reel	5000pcs/box	25000pcs/cartoon

■ **Suggested thermal profiles for soldering processes**



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