

MCR20300CT/FCT/CD

SUPER LOW VF SCHOTTKY RECTIFIERS



VOLTAGE

300Volts

CURRENT

20 Ampers

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°C (for TO-263 package)
- Solder bath temperature 275°C 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

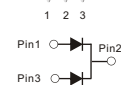
TO-220AB

MBR20300CT



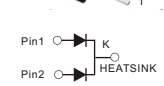
ITO-220AB

MBR20300FCT



TO-263

MBR20300CD



Maximum Ratings

(Ratings at 25°C ambient temperature unless otherwise specified)

Parameter		Symbol	MCR20300CT/FCT/CD	Unit
Maximum repetitive peak reverse voltage		V_{RRM}	300	V
Maximum average forward rectified current (see fig.1)	Per leg	$I_{F(AV)}$	10.0	A
	Total device		20.0	
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)		I_{FSM}	300	A
Peak repetitive reverse current per diode at $t_p=2 \mu s$ 1 KHz		I_{RRM}	2.5	A
Operating junction and Storage temperature range		T_J, T_{stg}	-55 to +150	°C
Isolation voltage (ITO-220AB only) from terminals to heatsink $t=1$ min		V_{AC}	1500	V

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Test Conditions		Symbol	TYP.	MAX.	Unit
Instaneous forward voltage	Per leg $I_F=10.0A$	$T_A=25^\circ C$	$V_F^{1)}$	0.93	0.97	V
		$T_A=100^\circ C$		—	—	
		$T_A=125^\circ C$		—	—	
Reverse current	$V_F=300V$	$T_A=25^\circ C$	$I_R^{2)}$	15	100	μA
		$T_A=100^\circ C$		0.5	—	mA
		$T_A=125^\circ C$		1	—	
Typical junction capacitance	4V, 1MHz		C_J	770		pF

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

2.Pulse test: pulse width $\leq 40ms$

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RATING AND CHARACTERISTIC CURVES

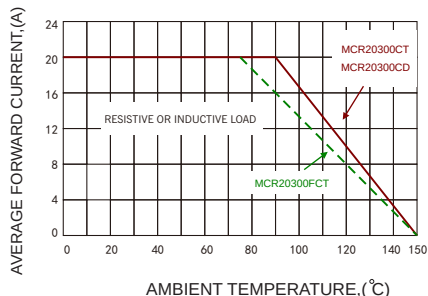


Fig.1 FORWARD CURRENT DERATING CURVE

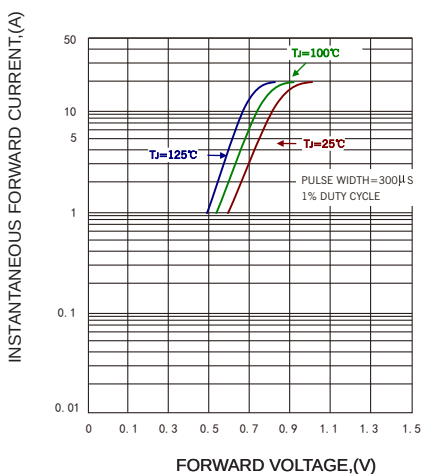


Fig.2-TYPICAL INSTANTANEOUS FORWARD

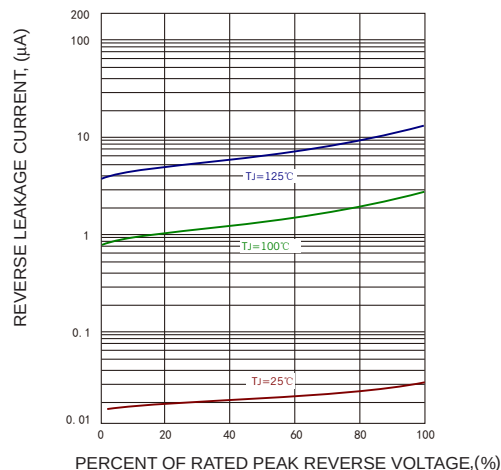


Fig.3 TYPICAL REVERSE CHARACTERISTICS

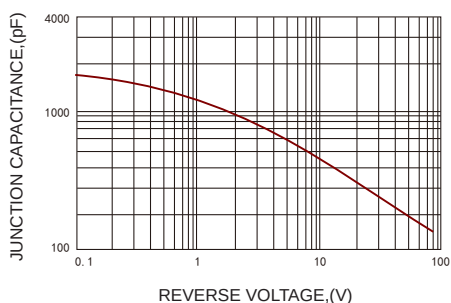


Fig.4 TYPICAL JUNCTION CAPACITANCE

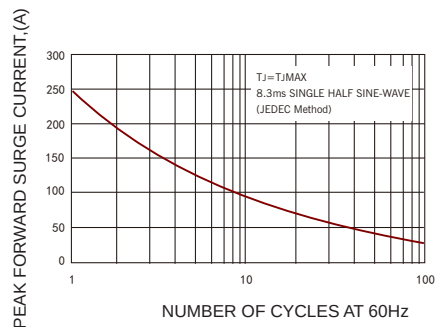


Fig.5- MAXIMUM NON - REPETITIVE SURGE CURRENT

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	MCR20300CT	MCR20300FCT	MCR20300CD	Unit
Typical thermal resistance ³⁾	R _{θJC}	2.2	4.0	2.2	°C/W

3. Thermal resistance from junction to case

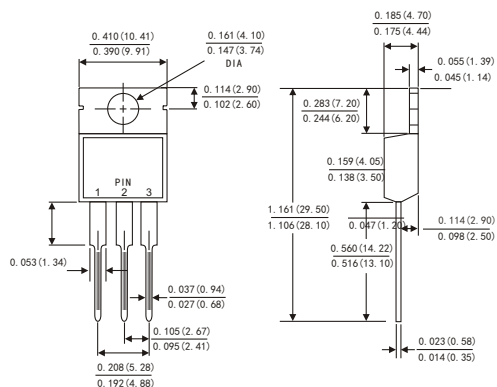
MCR20300CT/FCT/CD

SUPER LOW VF SCHOTTKY RECTIFIERS

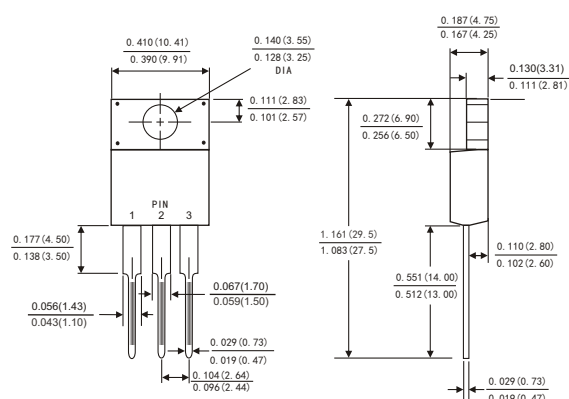


OUTLINE DRAWINGS

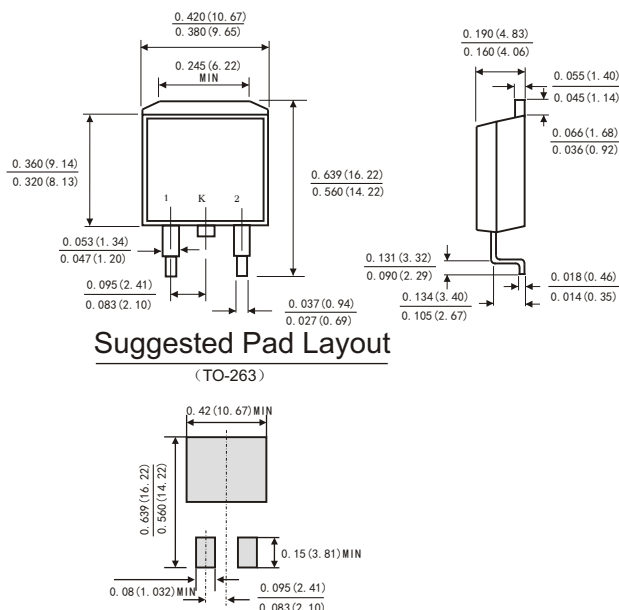
TO-220AB



ITO-220AB

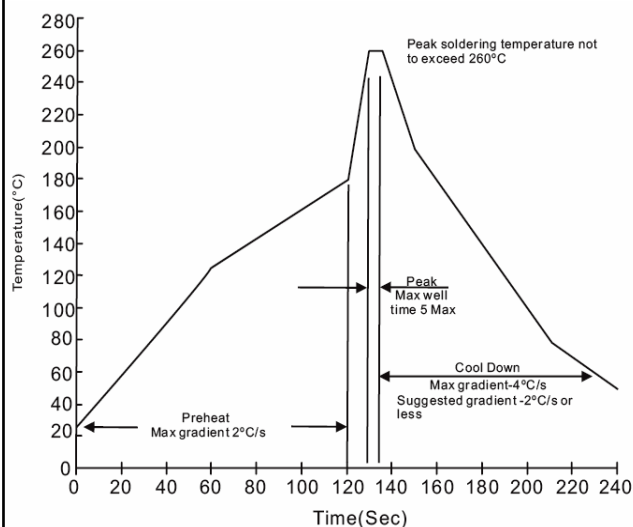


TO-263



SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

LEAD FREE TEMPERATURE PROFILE WAVE-SOLDERING



ORDER INFORMATION

- Packing information

Product code	Pack	Box Size L×W×H (mm)	Quantity (pcs/box)	Carton Size L×W×H (mm)	Quantity (box/carton)
MCR20300CT	P/T	550×150×40	1000	580×230×175	5
MCR20300FCT	P/T	550×150×40	1000	580×230×175	5
MCR20300CD	P/T	550×150×40	1000	580×230×175	5

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