

MBRF20100CT Диод Шоттки

20 Amp

$$I_{F(AV)} = 20\text{Amp}$$
$$V_R = 80/100\text{V}$$

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform (Per Device)	20	A
I_{FRM} @ $T_C = 133^\circ\text{C}$ (Per Leg)	20	A
V_{RRM}	80/100	V
I_{FSM} @ tp = 5 μs sine	850	A
V_F @ 10 Apk, $T_J = 125^\circ\text{C}$	0.70	V
T_J range	-65 to 150	$^\circ\text{C}$

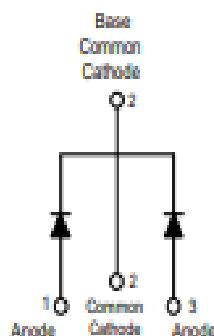
Description/ Features

This center tap Schottky rectifier has been optimized for low reverse leakage at high temperature. The proprietary barrier technology allows for reliable operation up to 150°C junction temperature. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- 150°C T_J operation
- Center tap D²Pak and TO-262 packages
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

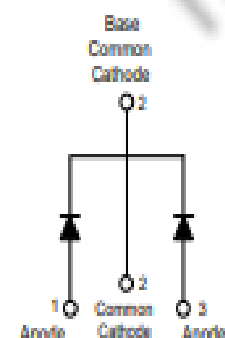
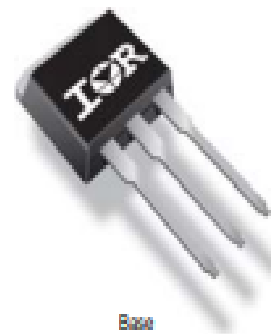
Case Styles

MBR20... S



D²PAK

MBR20... -1



TO-262

Voltage Ratings

Parameters	MBRB2080CT MBR2080CT-1	MBRB2090CT MBR2090CT-1	MBRB20100CT MBR20100CT-1
V_R Max. DC Reverse Voltage (V)	80	90	100
V_{RWM} Max. Working Peak Reverse Voltage (V)			

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current (Per Leg) (Per Device)	10	A	@ $T_C = 133^\circ\text{C}$, (Rated V_R)
	20		
I_{FRM} Peak Repetitive Forward Current (Per Leg)	20	A	Rated V_R , square wave, 20kHz $T_C = 133^\circ\text{C}$
I_{FSM} Non Repetitive Peak Surge Current	850	A	5 μs Sine or 3 μs Rect. pulse Following any rated load condition and with rated V_{RRM} applied Surge applied at rated load conditions halfwave, single phase, 60Hz
	150		
I_{RRM} Peak Repetitive Reverse Surge Current	0.5	A	2.0 μsec 1.0 KHz
E_{AS} Non-Repetitive Avalanche Energy (Per Leg)	24	mJ	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 12$ mH

Electrical Specifications

Parameters	Values	Units	Conditions
V_{FM} Max. Forward Voltage Drop (1)	0.80	V	@ 10A
	0.95	V	@ 20A
	0.70	V	@ 10A
	0.85	V	@ 20A
I_{RM} Max. Instantaneous Reverse Current (1)	0.10	mA	$T_J = 25^\circ\text{C}$
	6	mA	$T_J = 125^\circ\text{C}$
$V_{F(TO)}$ Threshold Voltage	0.433	V	$T_J = T_J \text{ max.}$
r_l Forward Slope Resistance	15.8	m Ω	
C_T Max. Junction Capacitance	400	pF	$V_R = 5V_{DC}$ (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance	8.0	nH	Measured from top of terminal to mounting plane
dv/dt Max. Voltage Rate of Change (Rated V_R)	10000	V/ μs	

(1) Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications

Parameters	Values	Units	Conditions
T_J Max. Junction Temperature Range	-65 to 150	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-65 to 175	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case (Per Leg)	2.0	$^\circ\text{C}/\text{W}$	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	50	$^\circ\text{C}/\text{W}$	DC operation For D ² Pak and TO-262
wt Approximate Weight	2 (0.07)	g (oz.)	
T Mounting Torque	Min.	6 (5)	Non-lubricated threads
	Max.	12 (10)	
Marking Device	MBRB20100CT		D ² Pak
	MBR20100CT-1		TO-262

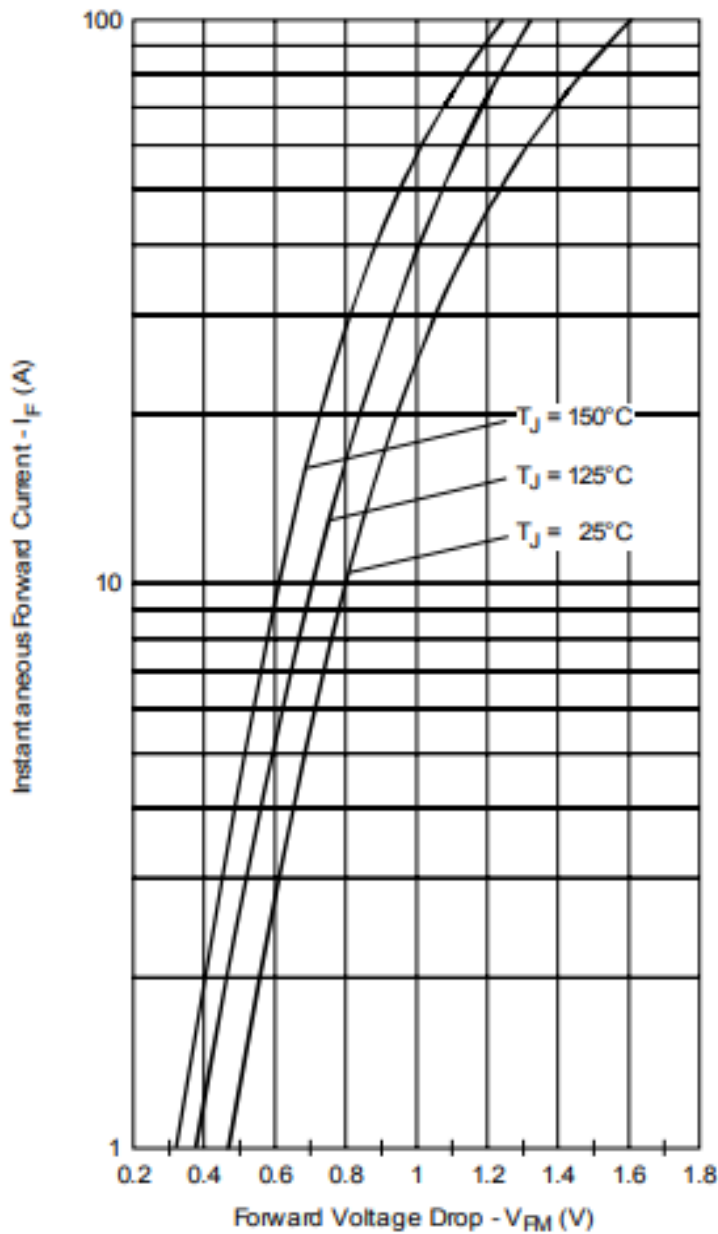


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

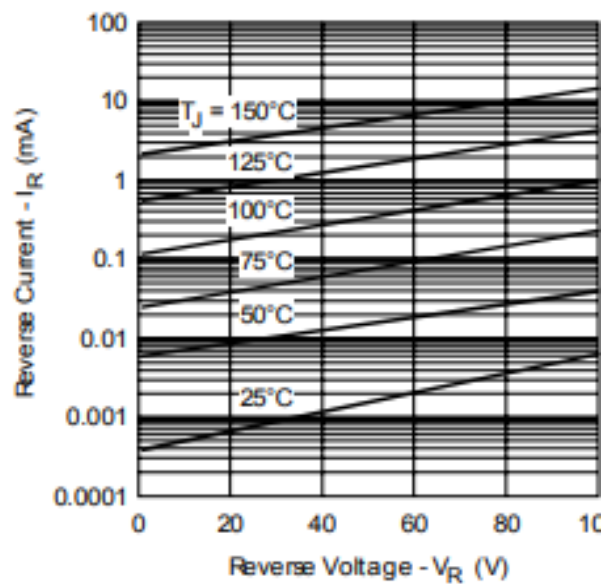


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

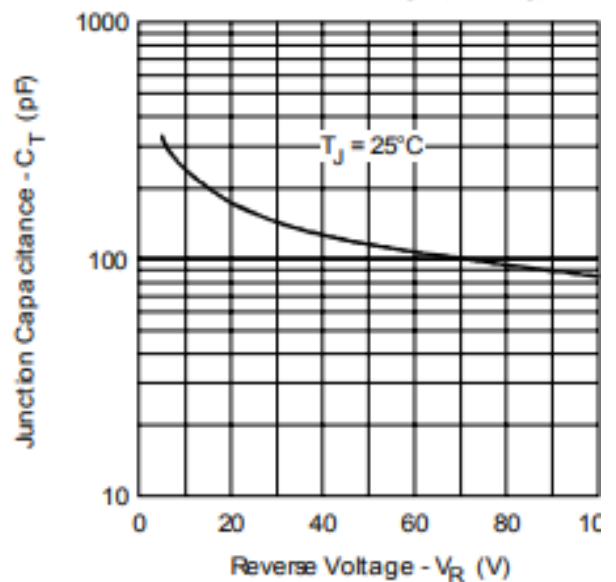


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

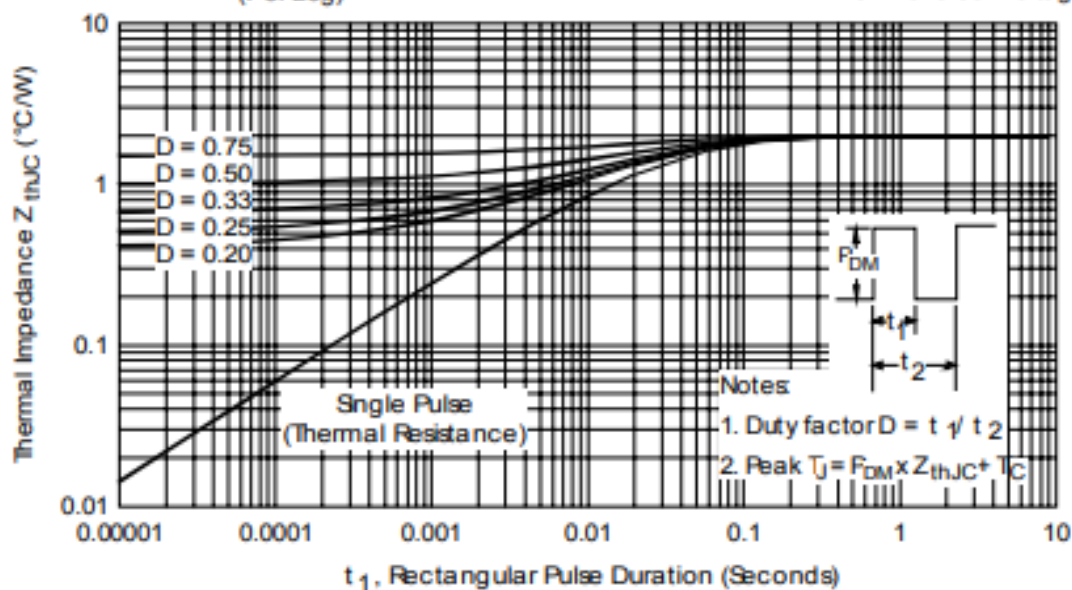


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

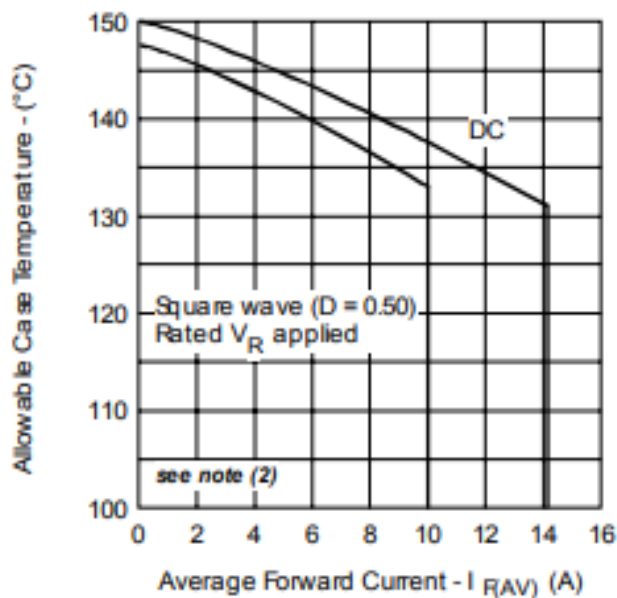


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

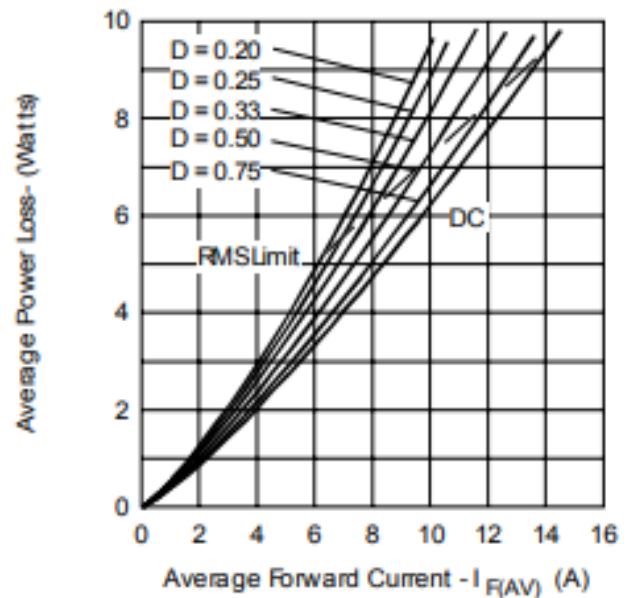


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

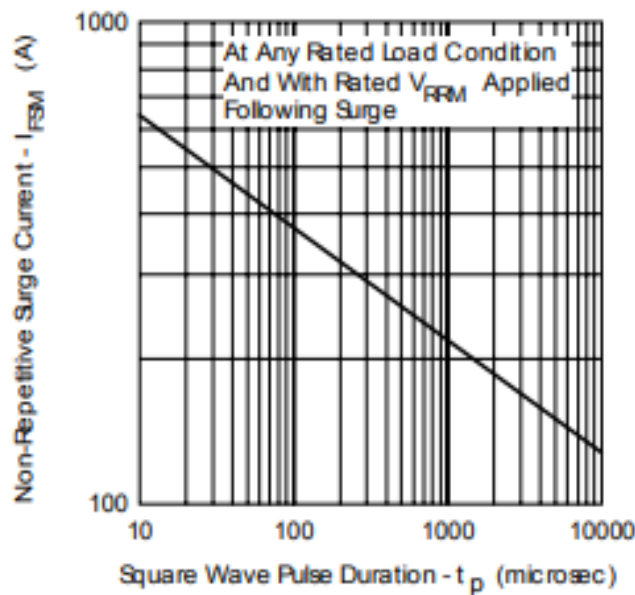


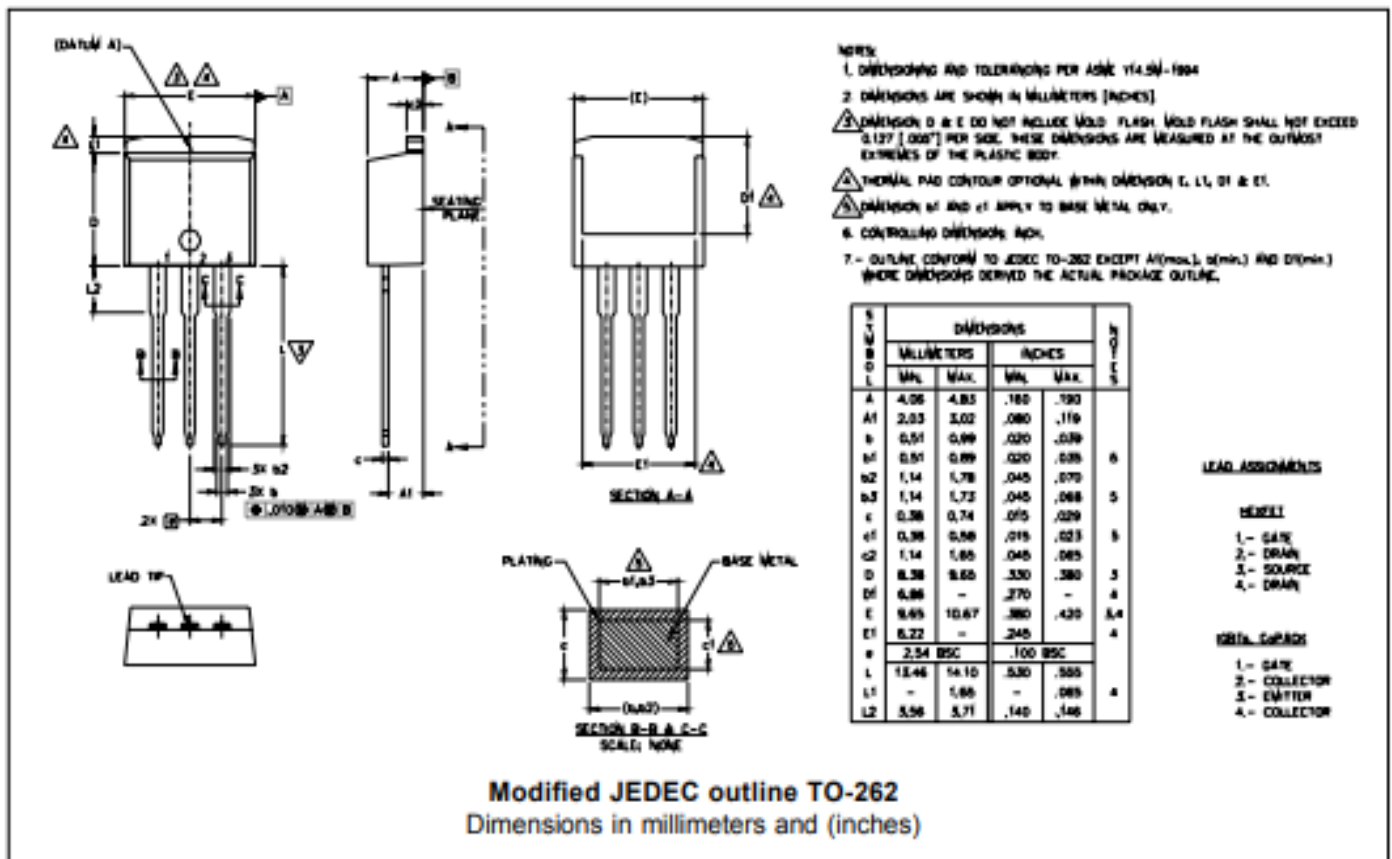
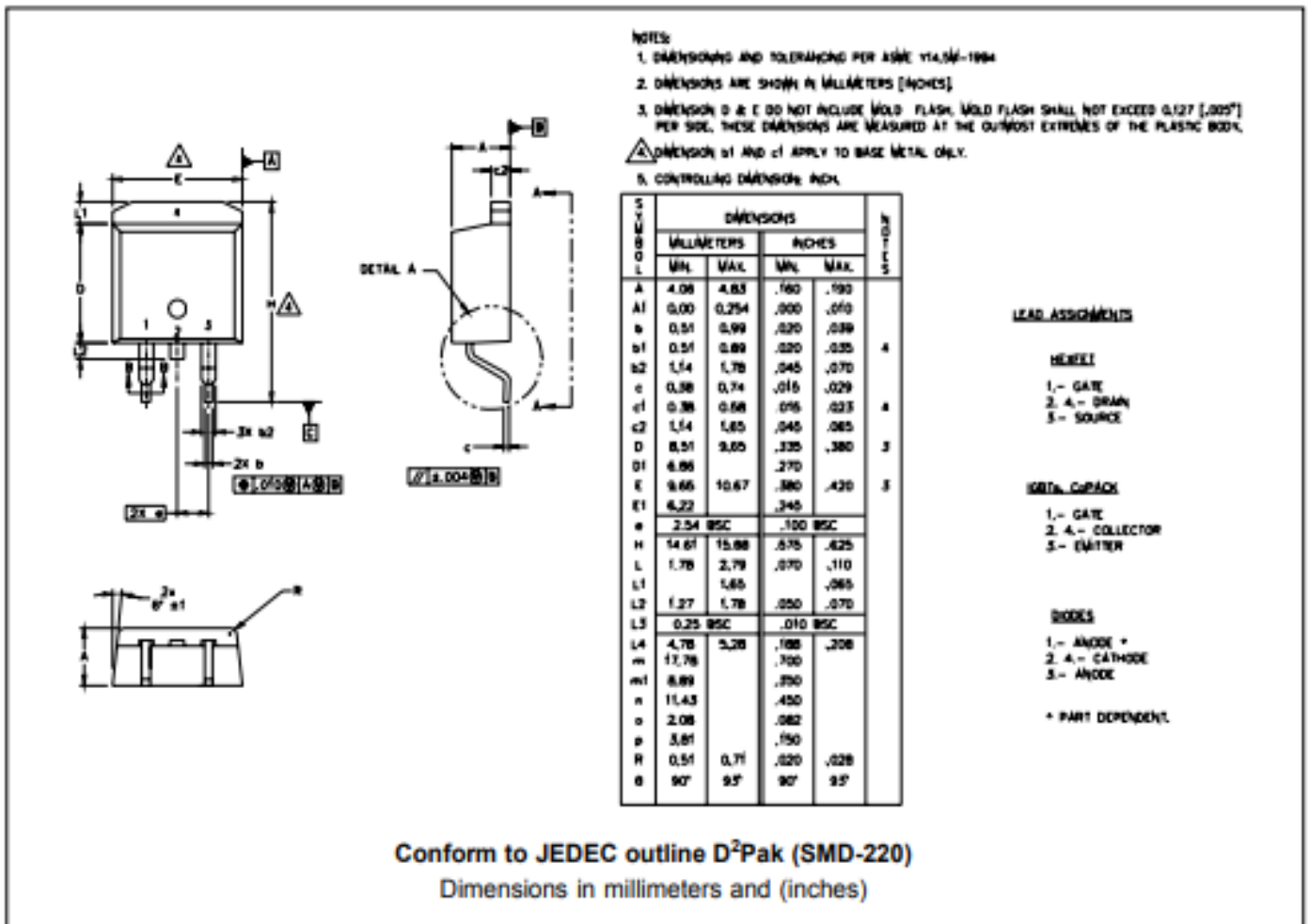
Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)

(2) Formula used: $T_C = T_J - (Pd + Pd_{REV}) \times R_{\theta JC}$

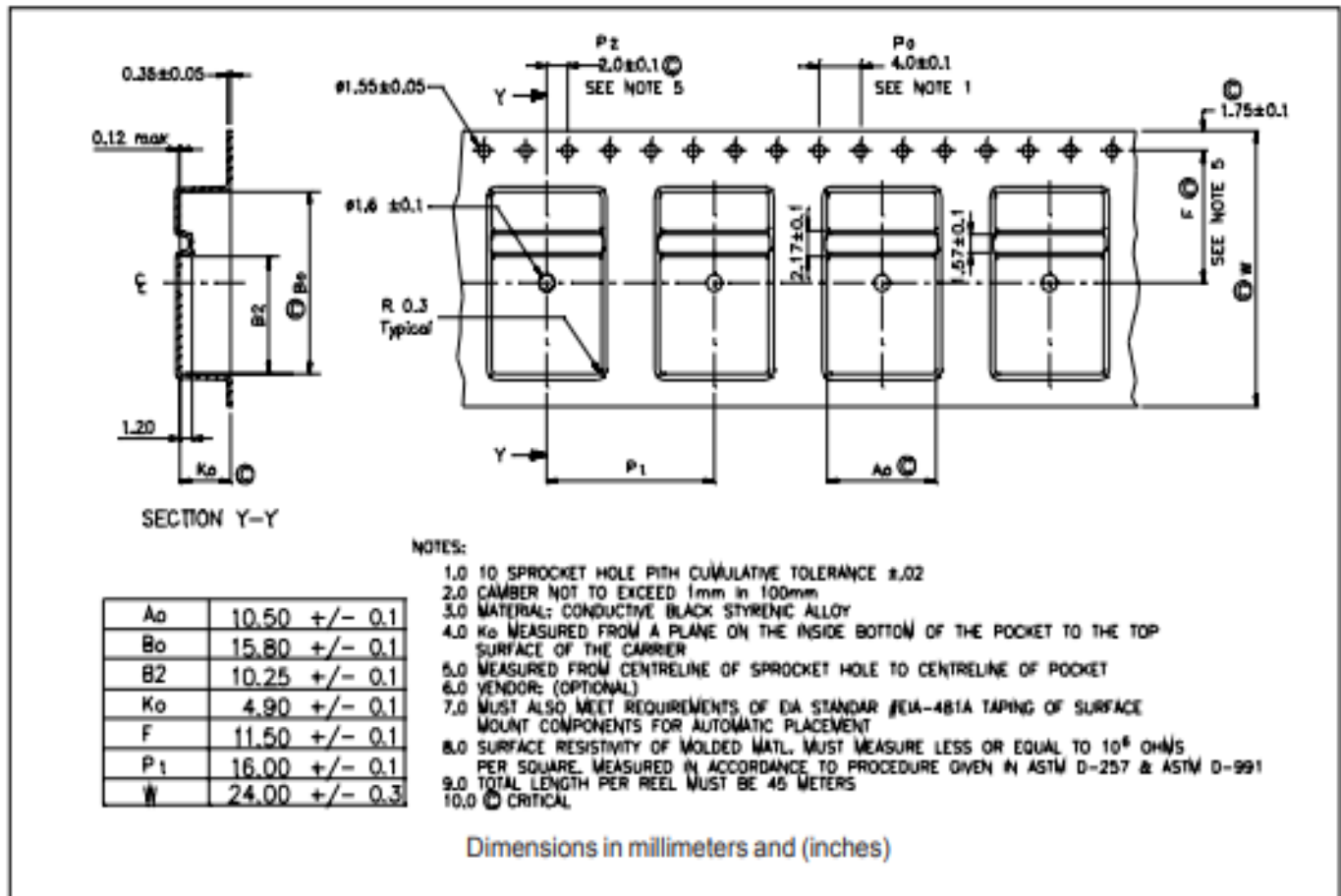
$Pd = \text{Forward Power Loss} = I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$Pd_{REV} = \text{Inverse Power Loss} = V_{R1} \times I_R (1 - D); I_R @ V_{R1} = \text{rated } V_R$

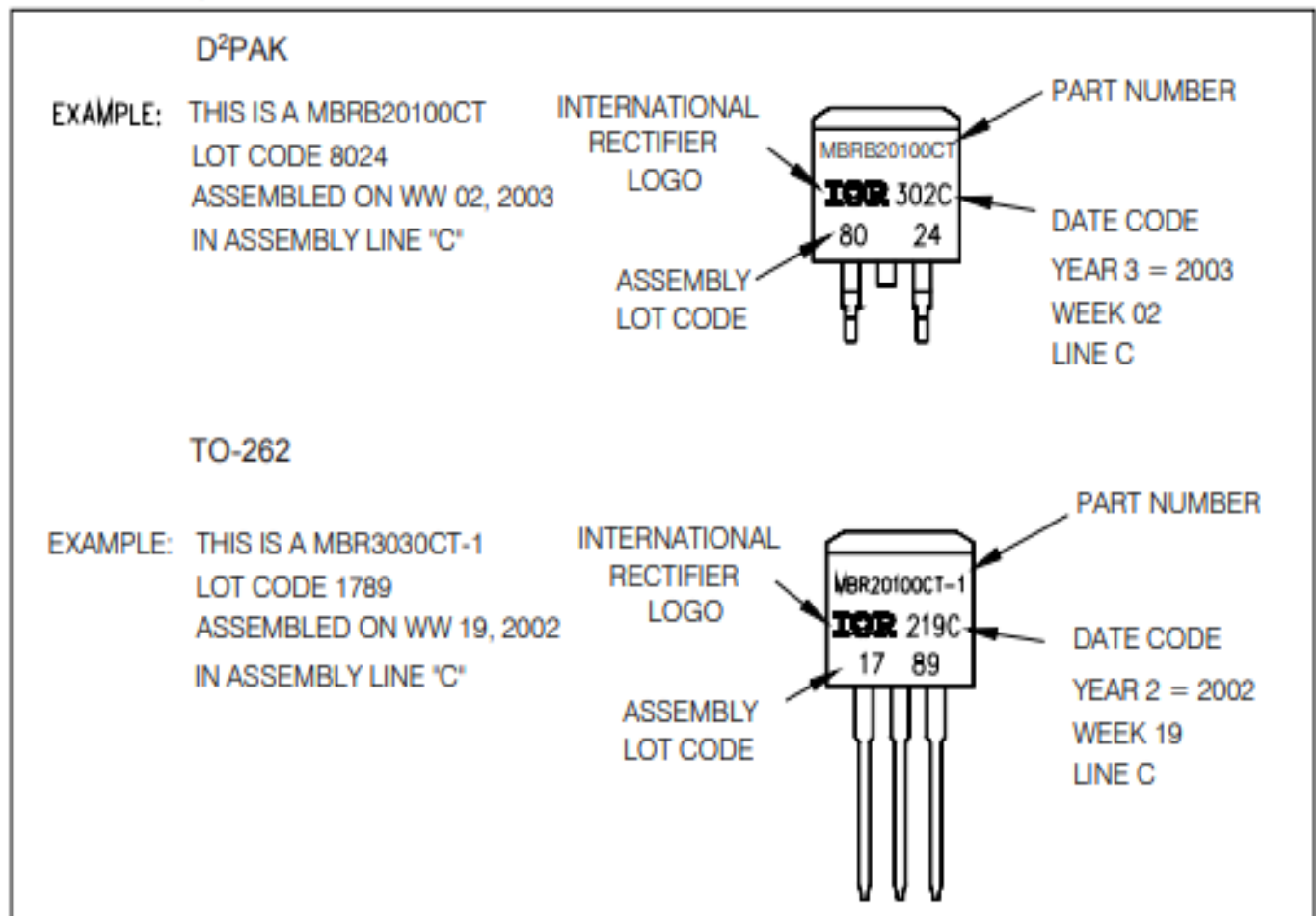
Outline Table



Tape & Reel Information

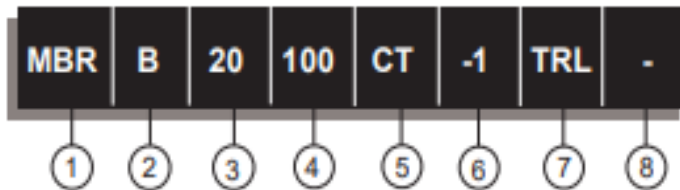


Part Marking Information



Ordering Information Table

Device Code



- 1** - Essential Part Number
- 2** -
 - B = D²Pak **6** none
 - none = TO-262 **6** = -1
- 3** - Current Rating (20 = 20A)
- 4** - Voltage Ratings 80 = 80V
90 = 90V
100 = 100V
- 5** - CT = Essential Part Number
- 6**
 - none = D²Pak **2** = B
 - -1 = TO-262 **2** none
- 7** -
 - none = Tube (50 pieces)
 - TRL = Tape & Reel (Left Oriented - for D²Pak only)
 - TRR = Tape & Reel (Right Oriented - for D²Pak only)
- 8** -
 - none = Standard Production
 - PbF = Lead-Free (for TO-262 and D²Pak tube)
 - P = Lead-Free (for D²Pak TRR and TRL)