

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
 Http://www.100y.com.tw

Bulletin PD-20729 rev. C 12/03

International **IR** Rectifier

MUR2020CT MURB2020CT MURB2020CT-1

Ultrafast Rectifier

Features

- Ultrafast Recovery Time
- Low Forward Voltage Drop
- Low Leakage Current
- 175°C Operating Junction Temperature

$t_{rr} = 25\text{ns}$
$I_{F(AV)} = 20\text{Amp}$
$V_R = 200\text{V}$

Description/ Applications

International Rectifier's MUR.. series are the state of the art Ultra fast recovery rectifiers specifically designed with optimized performance of forward voltage drop and ultra fast recovery time.

The planar structure and the platinum doped life time control, guarantee the best overall performance, ruggedness and reliability characteristics.

These devices are intended for use in the output rectification stage of SMPS, UPS, DC-DC converters as well as free-wheeling diode in low voltage inverters and chopper motor drives.

Their extremely optimized stored charge and low recovery current minimize the switching losses and reduce over dissipation in the switching element and snubbers.

Absolute Maximum Ratings

Parameters		Max	Units
V_{RRM}	Peak Repetitive Peak Reverse Voltage	200	V
$I_{F(AV)}$	Average Rectified Forward Current Per Leg	10	A
	Total Device, (Rated V_R), $T_C = 145^\circ\text{C}$	20	
I_{FSM}	Non Repetitive Peak Surge Current Per Leg	100	
I_{FM}	Peak Repetitive Forward Current Per Leg (Rated V_R , Square wave, 20 KHz), $T_C = 145^\circ\text{C}$	20	
T_J, T_{STG}	Operating Junction and Storage Temperatures	-65 to 175	$^\circ\text{C}$

Case Styles

MUR2020CT	MURB2020CT	MURB2020CT-1
		
TO-220AB	D ² PAK	TO-262

MUR2020CT, MURB2020CT, MURB2020CT-1

International
IR Rectifier

Bulletin PD-20729 rev.C 12/03

Electrical Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters	Min	Typ	Max	Units	Test Conditions
V _{BR} , V _r Breakdown Voltage, Blocking Voltage	200	-	-	V	I _R = 100μA
V _F Forward Voltage	-	-	0.85	V	I _F = 8A, T _J = 125°C
	-	-	1.15	V	I _F = 16A, T _J = 25°C
	-	-	1.05	V	I _F = 16A, T _J = 125°C
I _R Reverse Leakage Current	-	-	15	μA	V _R = V _R Rated
	-	-	250	μA	T _J = 150°C, V _R = V _R Rated
C _T Junction Capacitance	-	55	-	pF	V _R = 200V
L _S Series Inductance	-	8.0	-	nH	Measured lead to lead 5mm from package body

Dynamic Recovery Characteristics @ T_J = 25°C (unless otherwise specified)

Parameters	Min	Typ	Max	Units	Test Conditions
t _{rr} Reverse Recovery Time	-	-	35	ns	I _F = 1.0A, di _F /dt = 50A/μs, V _R = 30V
	-	-	25		I _F = 0.5A, I _R = 1.0A, I _{REC} = 0.25A
	-	21	-	A	T _J = 25°C
	-	35	-		T _J = 125°C
I _{RRM} Peak Recovery Current	-	1.9	-	A	T _J = 25°C
	-	4.8	-		T _J = 125°C
Q _{rr} Reverse Recovery Charge	-	25	-	nC	T _J = 25°C
	-	78	-		T _J = 125°C

Thermal - Mechanical Characteristics

Parameters	Min	Typ	Max	Units
T _J Max. Junction Temperature Range	-	-	-65 to 175	°C
T _{Stg} Max. Storage Temperature Range	-	-	-65 to 175	°C
R _{thJC} Thermal Resistance, Junction to Case	-	-	2.5	°C/W
R _{thJA} Thermal Resistance, Junction to Ambient	-	-	50	
R _{thCS} ^① Thermal Resistance, Case to Heatsink	-	0.5	-	°C/W
Wt Weight	-	2.0	-	g
	-	0.07	-	(oz)
Mounting Torque	6.0	-	12	Kg-cm
	5.0	-	10	lbf.in

① Mounting Surface, Flat, Smooth and Greased

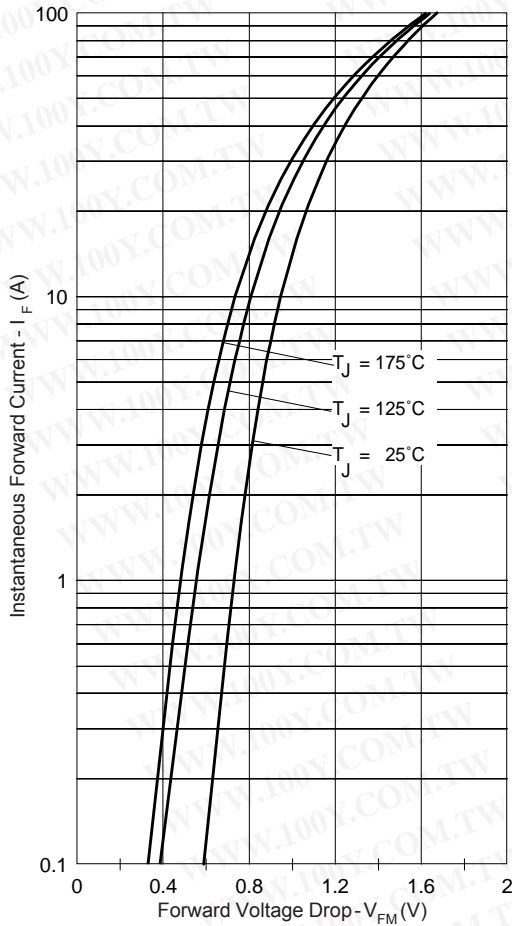


Fig. 1 - Typical Forward Voltage Drop Characteristics

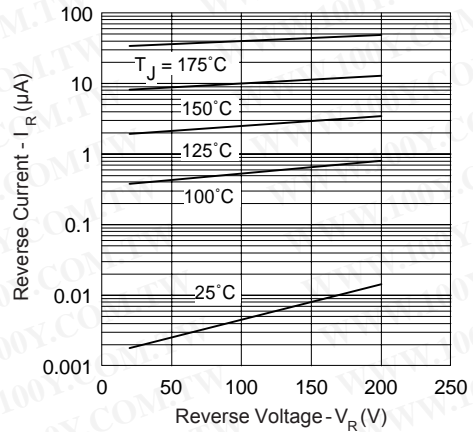


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage

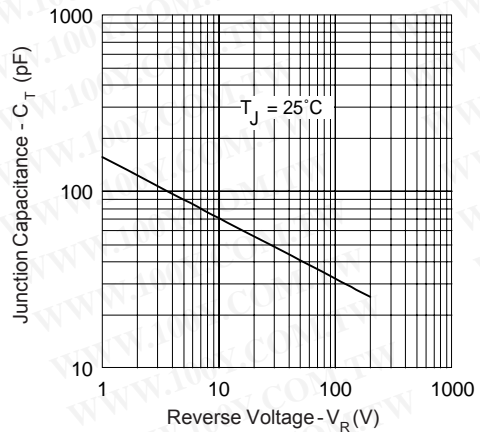


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

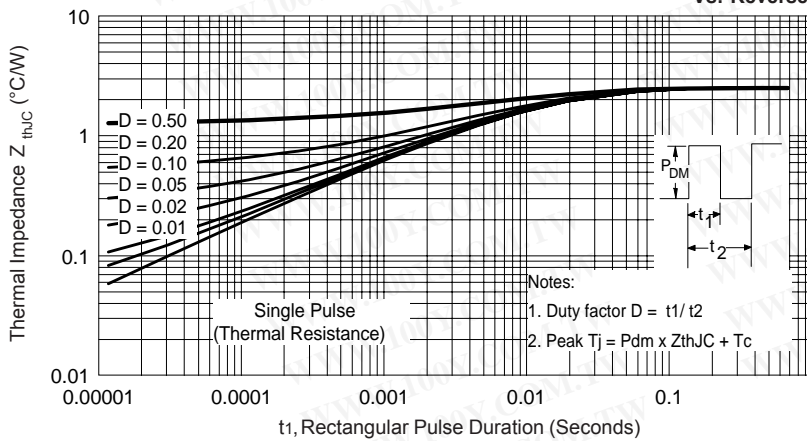


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics

MUR2020CT, MURB2020CT, MURB2020CT-1

International
IR Rectifier

Bulletin PD-20729 rev. C 12/03

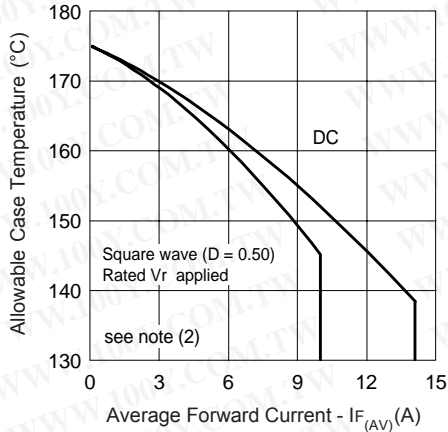


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current

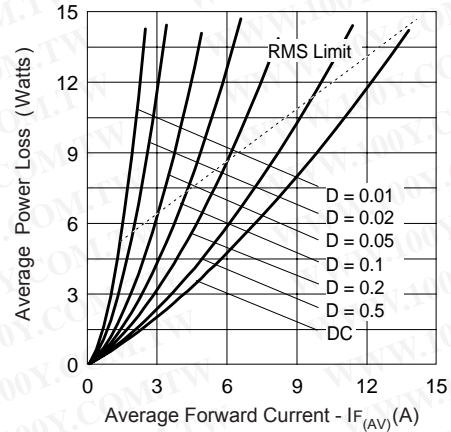


Fig. 6 - Forward Power Loss Characteristics

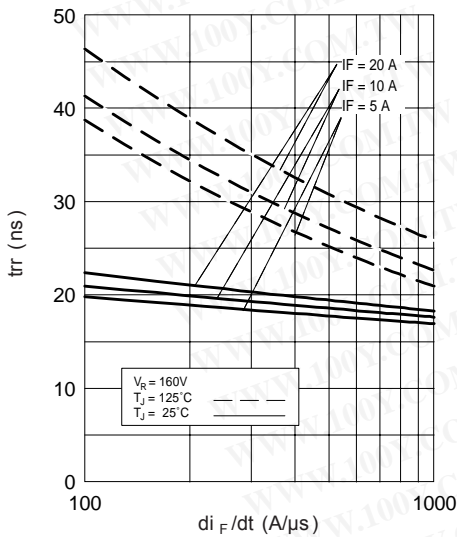


Fig. 7 - Typical Reverse Recovery vs. di_F/dt

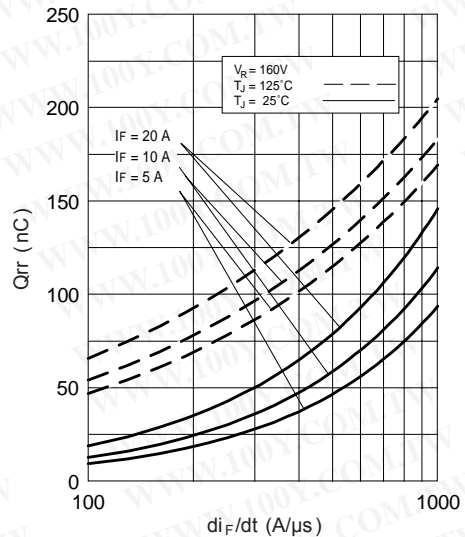


Fig. 8 - Typical Stored Charge vs. di_F/dt

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

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

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

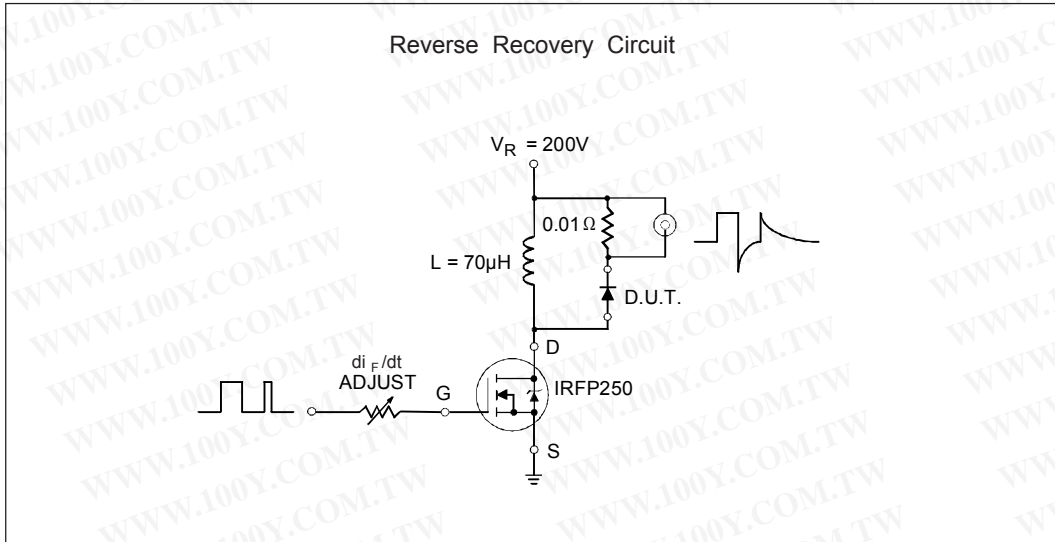


Fig. 9- Reverse Recovery Parameter Test Circuit

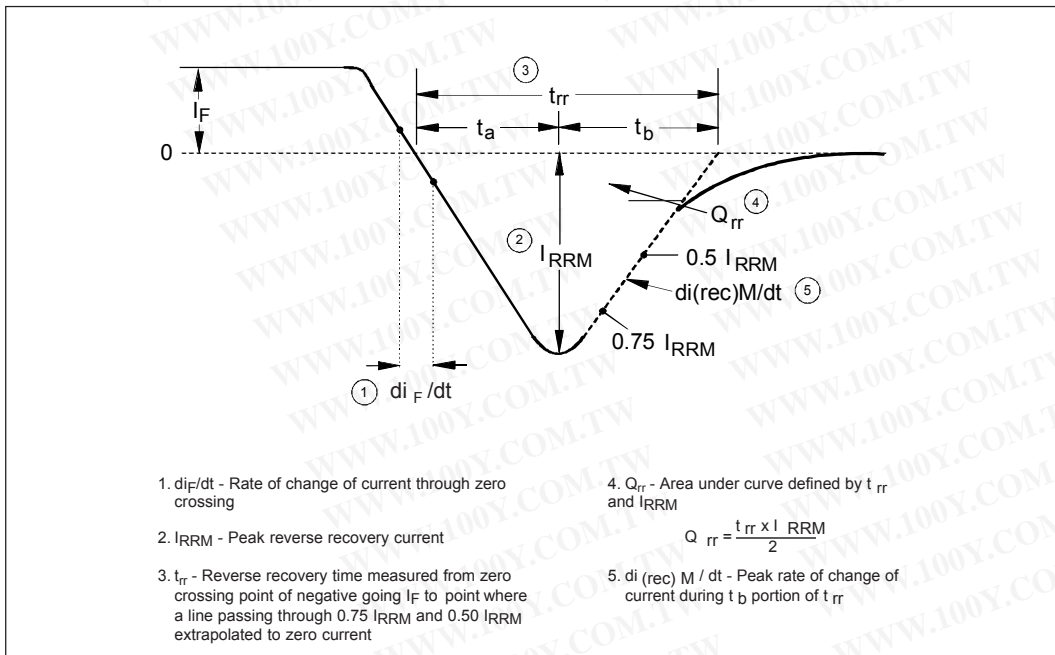


Fig. 10 - Reverse Recovery Waveform and Definitions

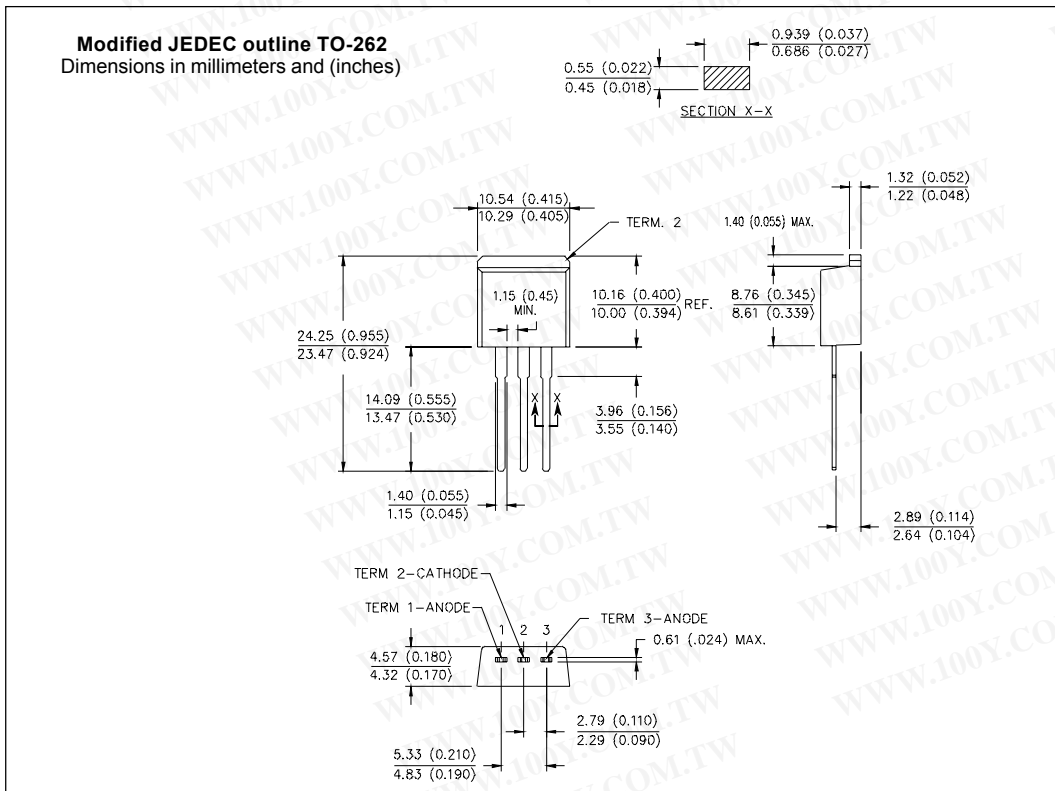
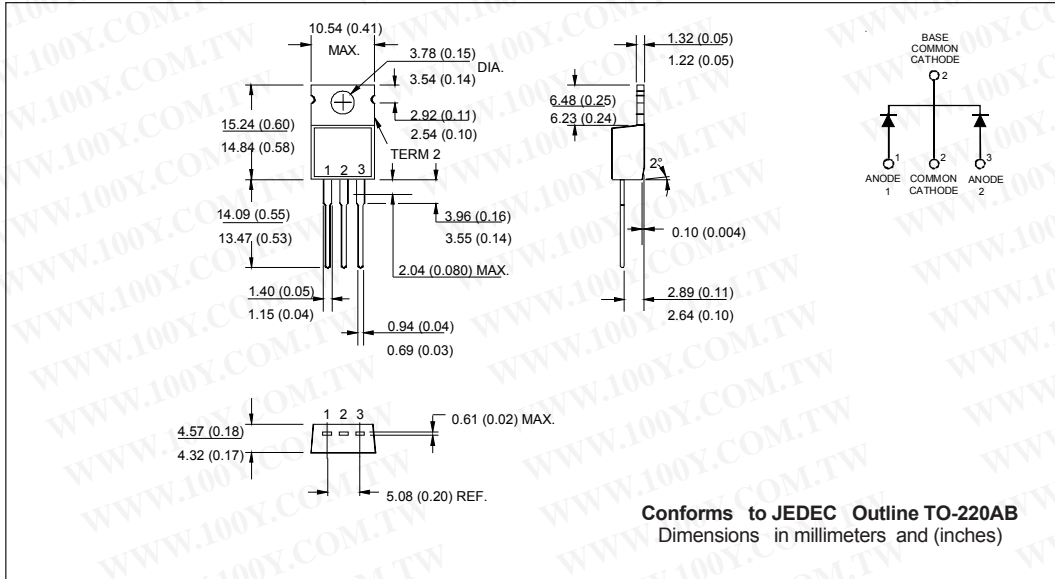
勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

MUR2020CT, MURB2020CT, MURB2020CT-1

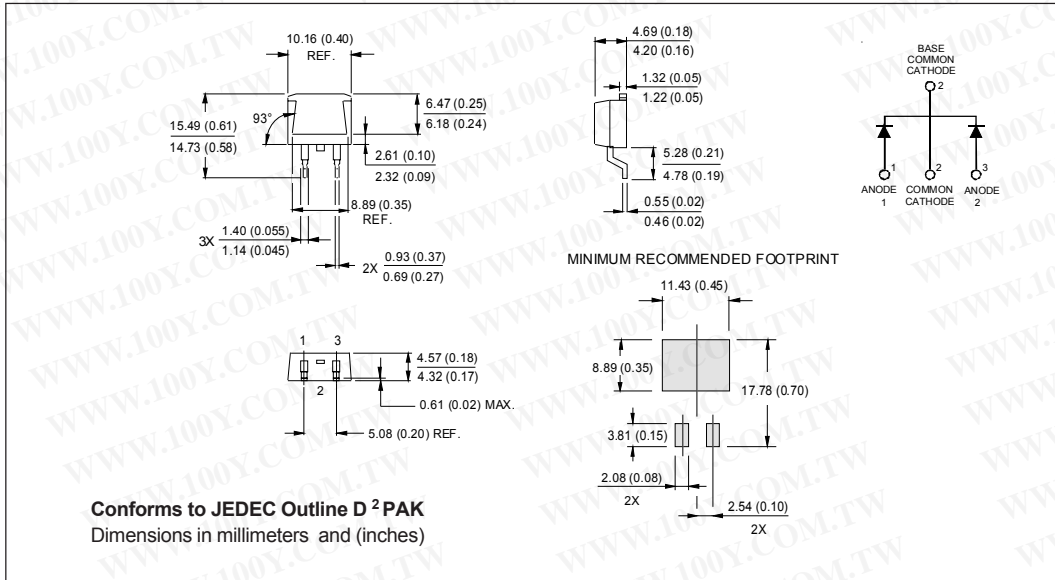
Bulletin PD-20729 rev.C 12/03

International
IRF Rectifier

Outline Table



Outline Table



Ordering Information Table

Device Code	
MUR	B
20	20
CT	-1
①	②
③	④
⑤	⑥

- 1** - Ultrafast MUR Series
- 2** - B = D²Pak / TO-262
None = TO-220AB
- 3** - Current Rating (20 = 20A)
- 4** - Voltage Rating (20 = 200V)
- 5** - CT = Center Tap (Dual) TO-220 /D²PAK/ TO-262
- 6** - "-1" = TO-262 Option

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)