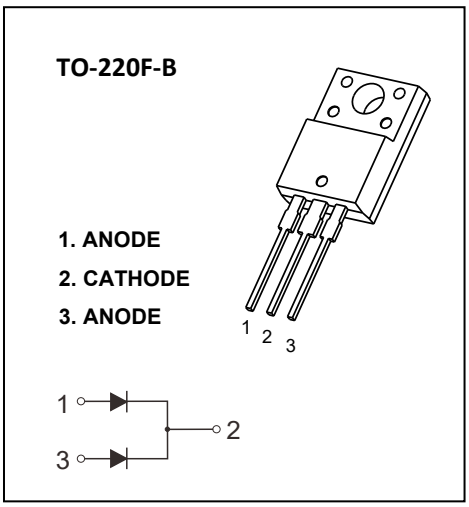
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

TO-220F-B Plastic-Encapsulate Diode

MURF20H40CTB HYPERFAST RECTIFIER,FRED



MAIN CHARACTERISTICS

I_O	20(10×2)A
V_{RRM}	400V
T_{rr}	23ns
T_j	175℃
$V_{F(typ)}$	0.9V(@T_j=150℃)

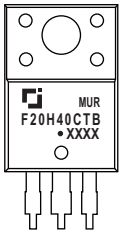
FEATURES

- Ultrafast Recovery Times and Low Recovery Loss
- Low Forward Voltage
- Low Reverse Leakage Current

APPLICATIONS

Specifically designed to improve efficiency of PFC and output rectification stages of EV / HEV battery charging stations, booster stage of solar inverters and UPS applications, these devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

MARKING



MURF20H40CTB = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code

MAXIMUM RATINGS (T_C=25℃ unless otherwise noted)

Symbol	Parameter	MURF20H40CTB	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	400	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average rectified output current@ Per leg(T_C=141℃)	10	A
	Average rectified output current@ Total device(T_C=141℃)	20	
$I_{F(RMS)}$	RMS Forward Current(T_C=141℃)	14	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	168	A
P_D	Power dissipation	125	W
$R_{\Theta JC}$	Thermal Resistance From Junction to Case	1.2	℃/W
T_j	Operating Junction Temperature Range	-55 ~ +175	℃
T_{stg}	Storage Temperature Range	-55 ~ +175	℃

Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

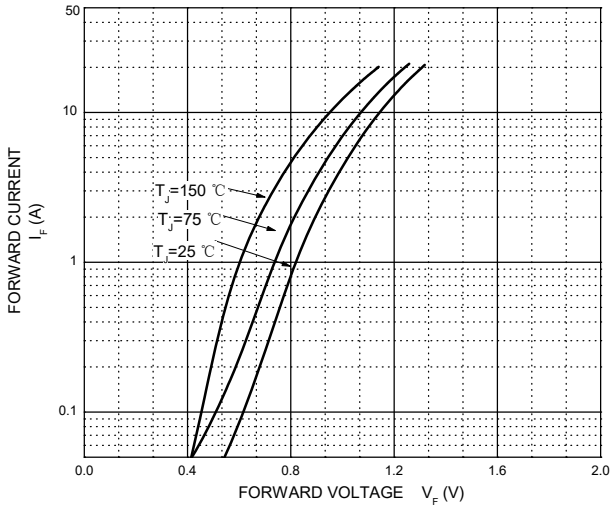
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	IR=100μA		400			V
I_R	Reverse Current	VR=400V	T_j=25℃			10	μA
			T_j=150℃			500	μA
V_F	Forward Voltage	IF=10A	T_j=25℃		1.1	1.4	V
			T_j=150℃		0.9		V
C_{tot}	Total Capacitance	VR=200V, f=1MHz			13.5		pF
trr	Reverse Recovery time	IF=0.5A, IR=1A,Irr=0.25A			28		ns
		IF=1A,VR=30V, di_F/dt =200A/us			23		ns

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

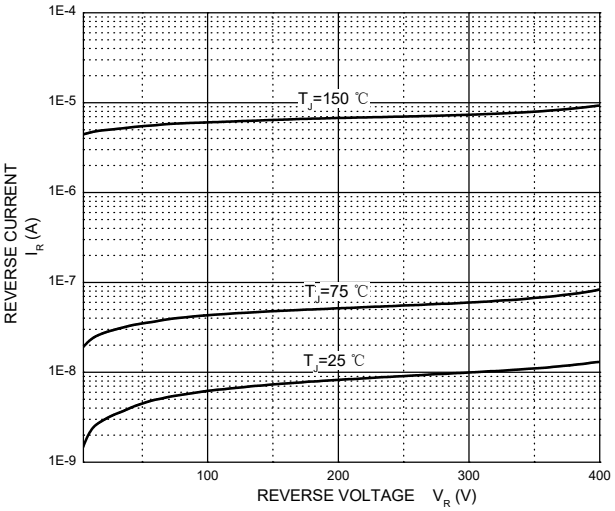
Symbol	Parameter	Test Comditions	Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	IF=10A, VR=200V, di_F/dt=200A/μs		50.5		ns
I_{RRM}	Max. Reverse Recovery Current			4.2		A
Qrr	Reverse Recovery Charge			125		nC
trr	Reverse Recovery Time	IF=10A, VR=200V, di_F/dt=200A/μs, T_j=125℃		75.5		ns
I_{RRM}	Max. Reverse Recovery Current			7.2		A
Qrr	Reverse Recovery Charge			314		nC
trr	Reverse Recovery Time	IF=10A, VR=200V, di_F/dt=600A/μs, T_j=125℃		44		ns
I_{RRM}	Max. Reverse Recovery Current			16.6		A
Qrr	Reverse Recovery Charge			403		nC

Typical Characteristics

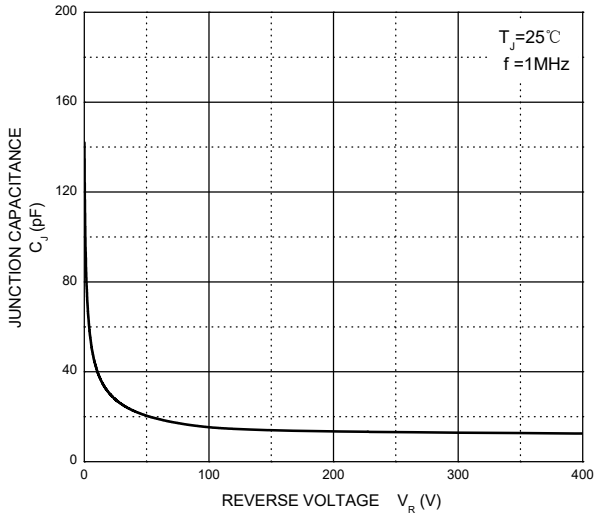
Forward Characteristics



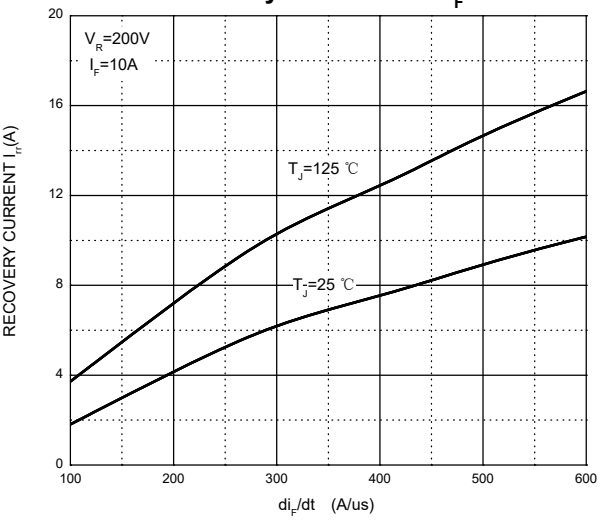
Reverse Characteristics



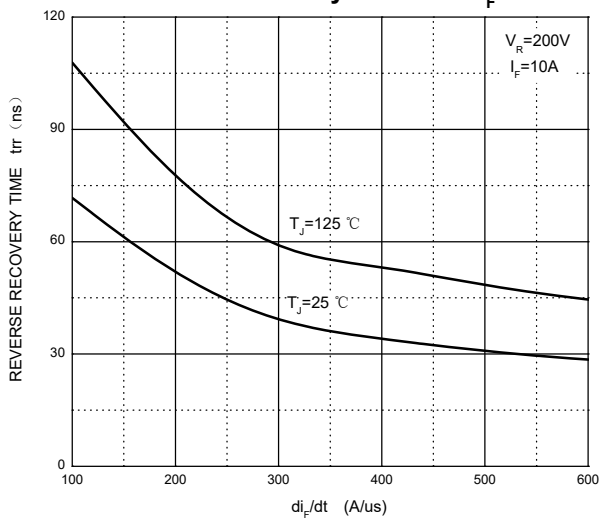
Capacitance Characteristics Per Diode



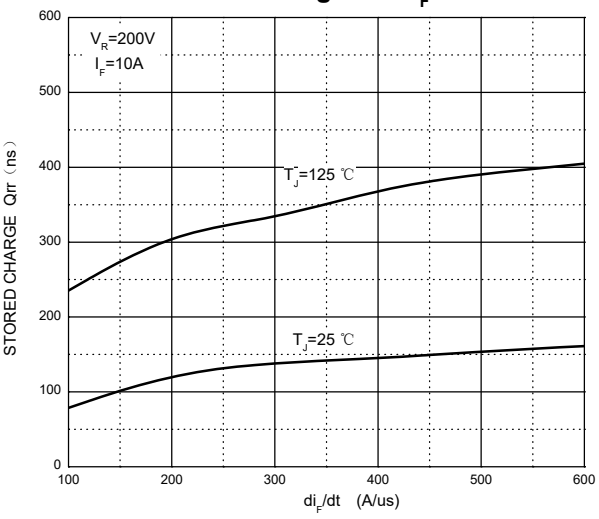
Recovery Current vs. di_F/dt



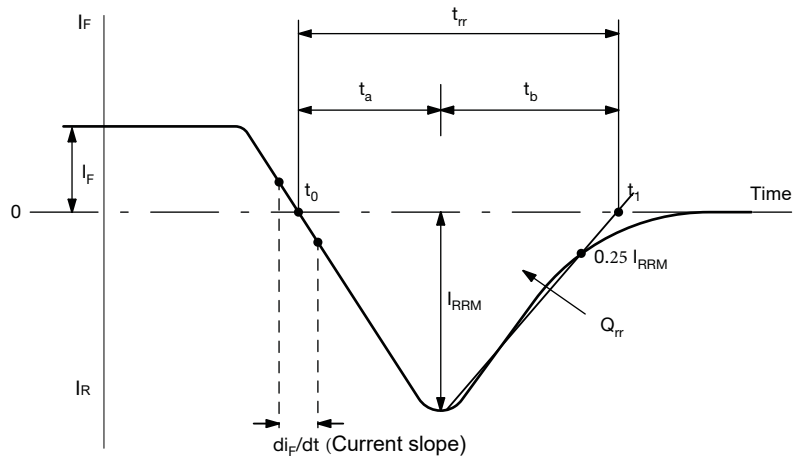
Reverse Recovery Time vs. di_F/dt



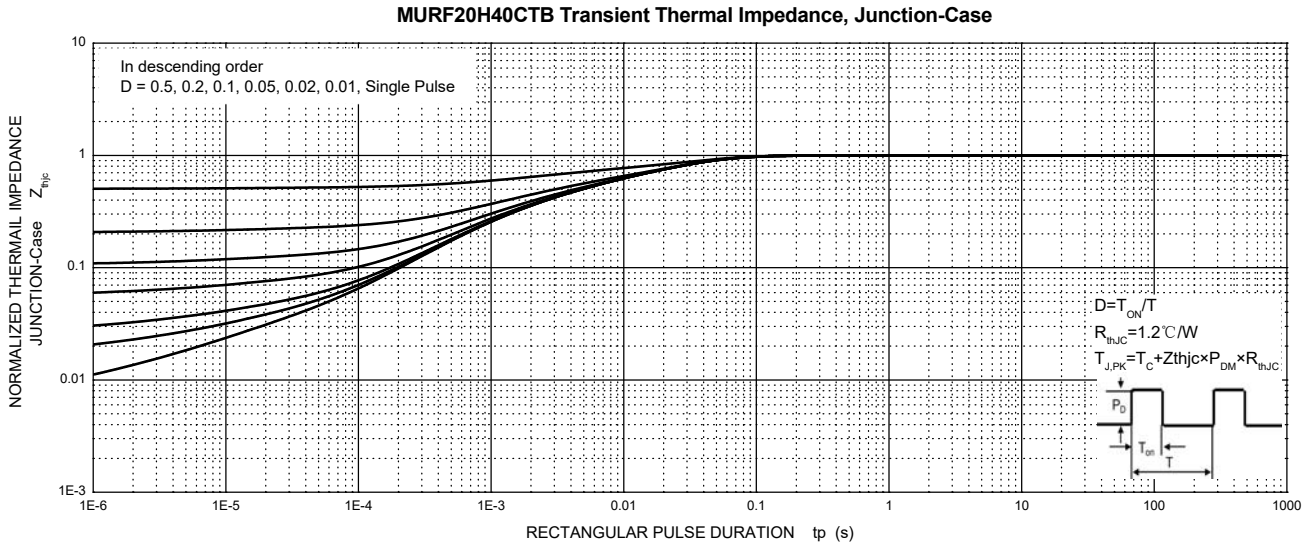
Stored Charge vs. di_F/dt



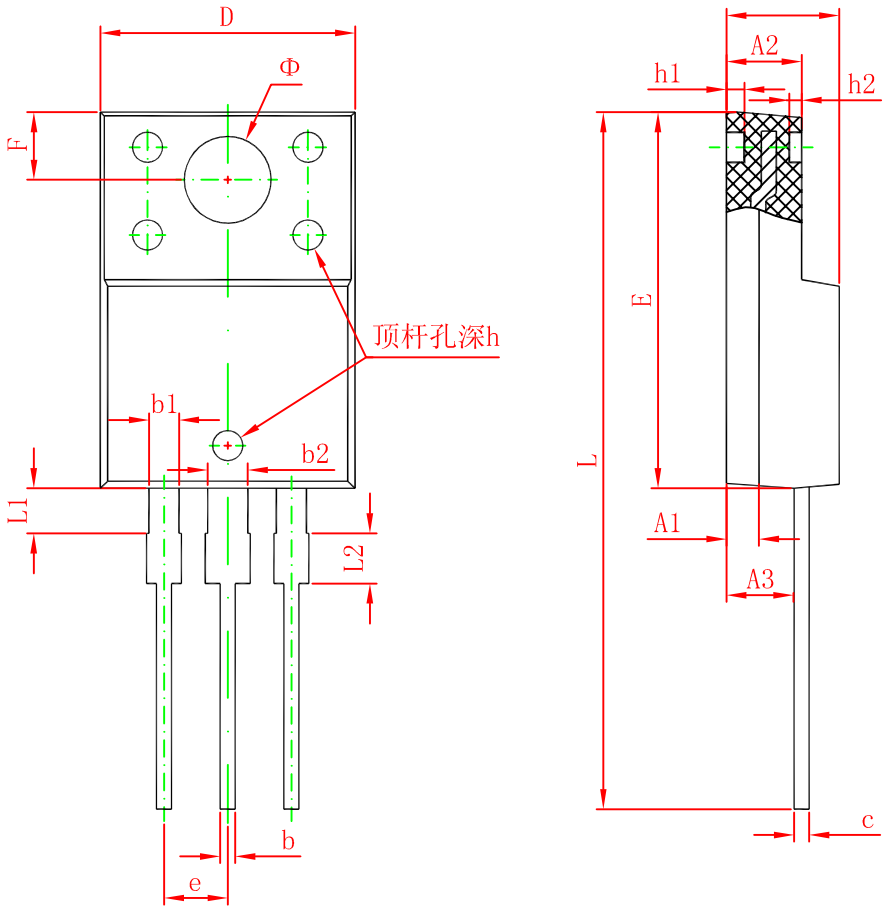
Typical Characteristics



Reverse Recovery Waveform and Definitions



TO-220F-B Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	1.900	2.100	0.075	0.083