

TO-220 Plastic-Encapsulate Diodes

HYPERFAST RECTIFIER,FRED

MAIN CHARACTERISTICS

I_o	20A
V_{RRM}	600V
T_{rr}	19ns
T_j	175°C
$V_{F(typ)}$	1.3V(@ $T_j=150^\circ\text{C}$)

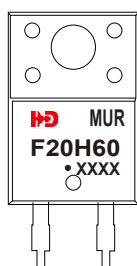
FEATURES

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

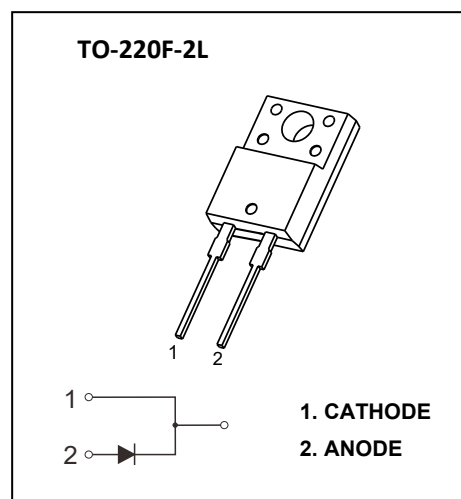
APPLICATIONS

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



MURF20H60 = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code



MAXIMUM RATINGS ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	MURF20H60	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average Forward Current($T_c=55^\circ\text{C}$)	20	A
$I_{F(RMS)}$	RMS Forward Current($T_c=55^\circ\text{C}$)	28	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	240	A
P_D	Power dissipation	54	W
$R_{\theta JC}$	Thermal Resistance From Junction to Case	2.8	$^\circ\text{C}/\text{W}$
T_j	Operating Junction Temperature Range	-55 ~ +175	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55 ~ +175	$^\circ\text{C}$

Typical Characteristics

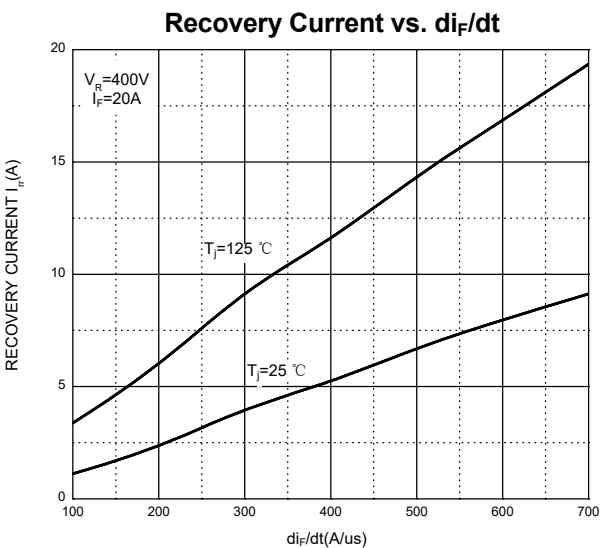
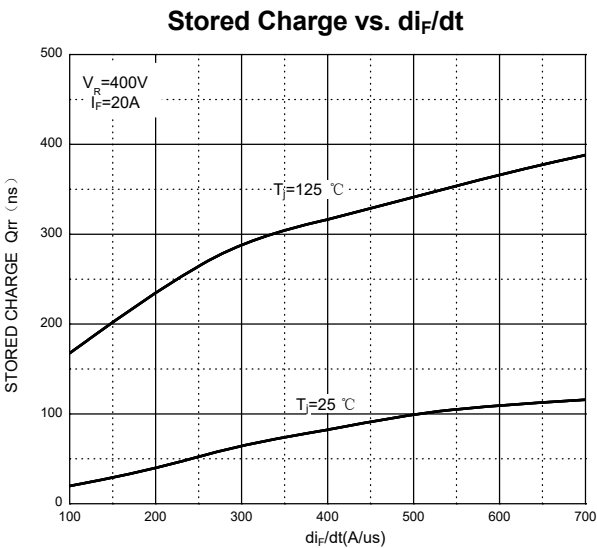
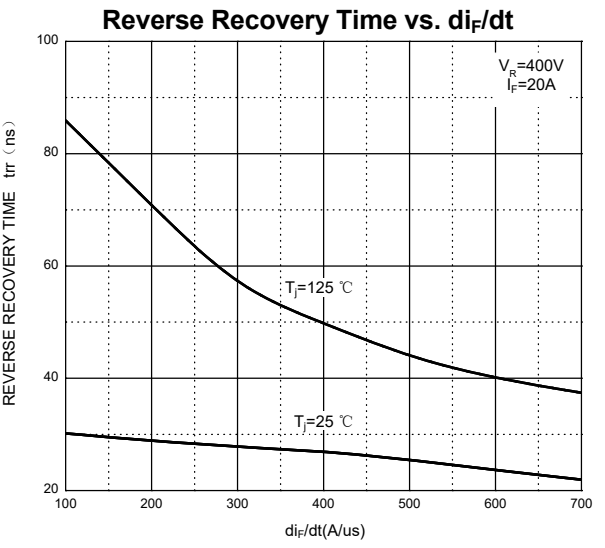
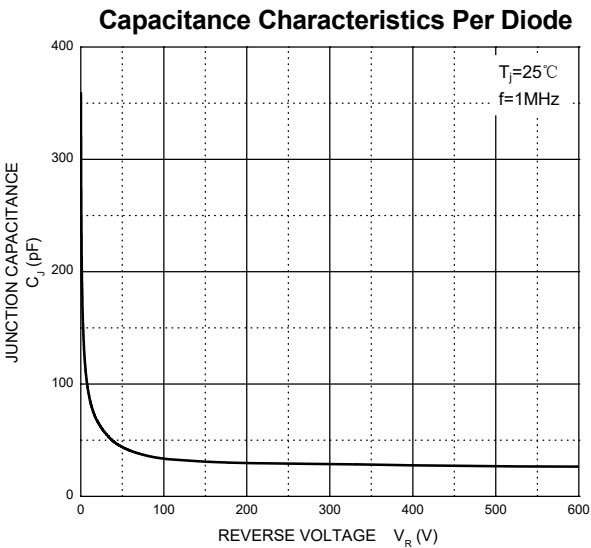
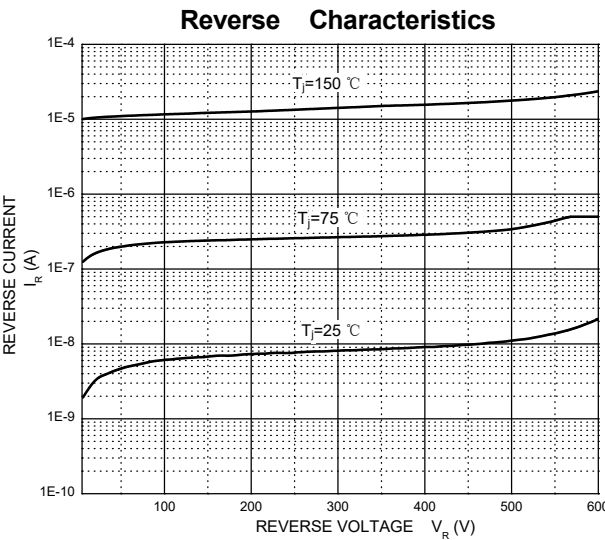
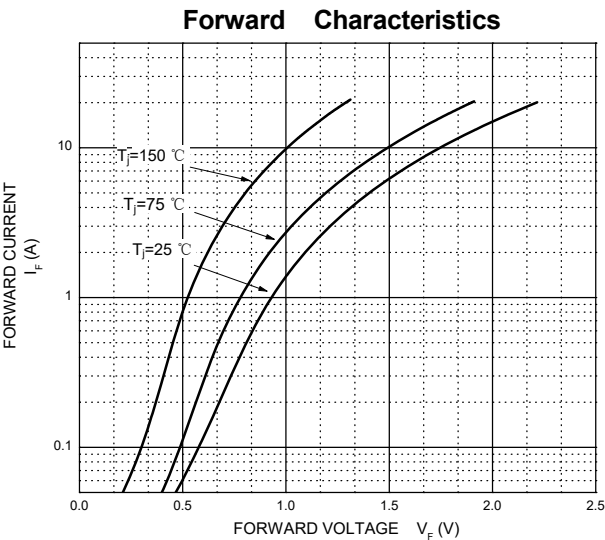
ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	$I_R=100\mu\text{A}$		600			V
I_R	Reverse Current	$V_R=600\text{V}$	$T_j=25^\circ\text{C}$			10	μA
			$T_j=150^\circ\text{C}$			500	μA
V_F	Forward Voltage	$I_F=20\text{A}$	$T_j=25^\circ\text{C}$		2.15	2.5	V
			$T_j=150^\circ\text{C}$		1.3		V
C_{tot}	Total Capacitance	$V_R=200\text{V}, f=1\text{MHz}$			30		pF
trr	Reverse Recovery time	$I_F=0.5\text{A}, I_R=1\text{A}, I_{rr}=0.25\text{A}$			31		ns
		$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=200\text{A}/\mu\text{s}$			19		ns

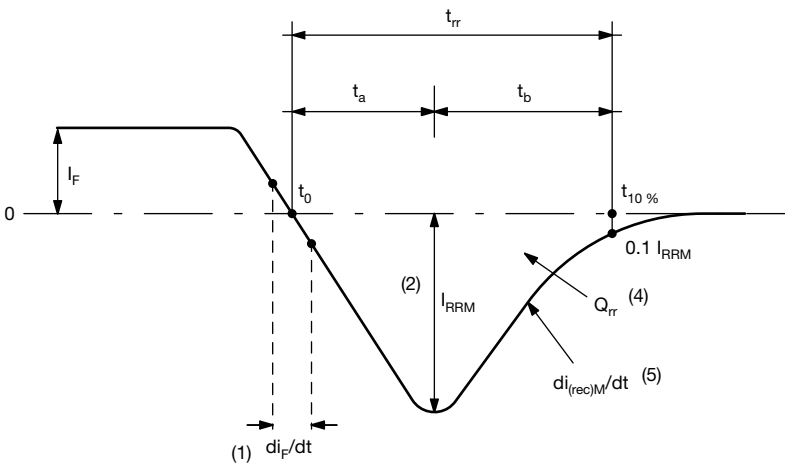
ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	$I_F=20\text{A}, V_R=400\text{V}, di_F/dt=200\text{A}/\mu\text{s}$		29		ns
I_{RRM}	Max. Reverse Recovery Current			2.3		A
Qrr	Reverse Recovery Charge			38		nC
trr	Reverse Recovery Time	$I_F=20\text{A}, V_R=400\text{V}, di_F/dt=200\text{A}/\mu\text{s}, T_j=125^\circ\text{C}$		71		ns
I_{RRM}	Max. Reverse Recovery Current			6		A
Qrr	Reverse Recovery Charge			236		nC
trr	Reverse Recovery Time	$I_F=20\text{A}, V_R=400\text{V}, di_F/dt=600\text{A}/\mu\text{s}, T_j=125^\circ\text{C}$		40		ns
I_{RRM}	Max. Reverse Recovery Current			17		A
Qrr	Reverse Recovery Charge			367		nC

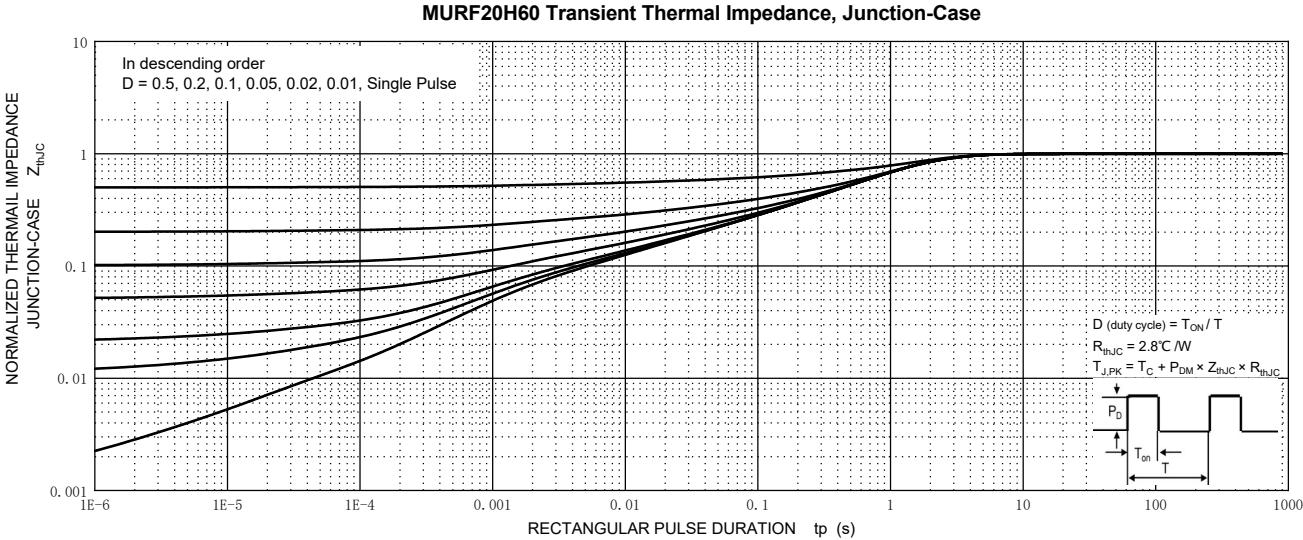
Typical Characteristics



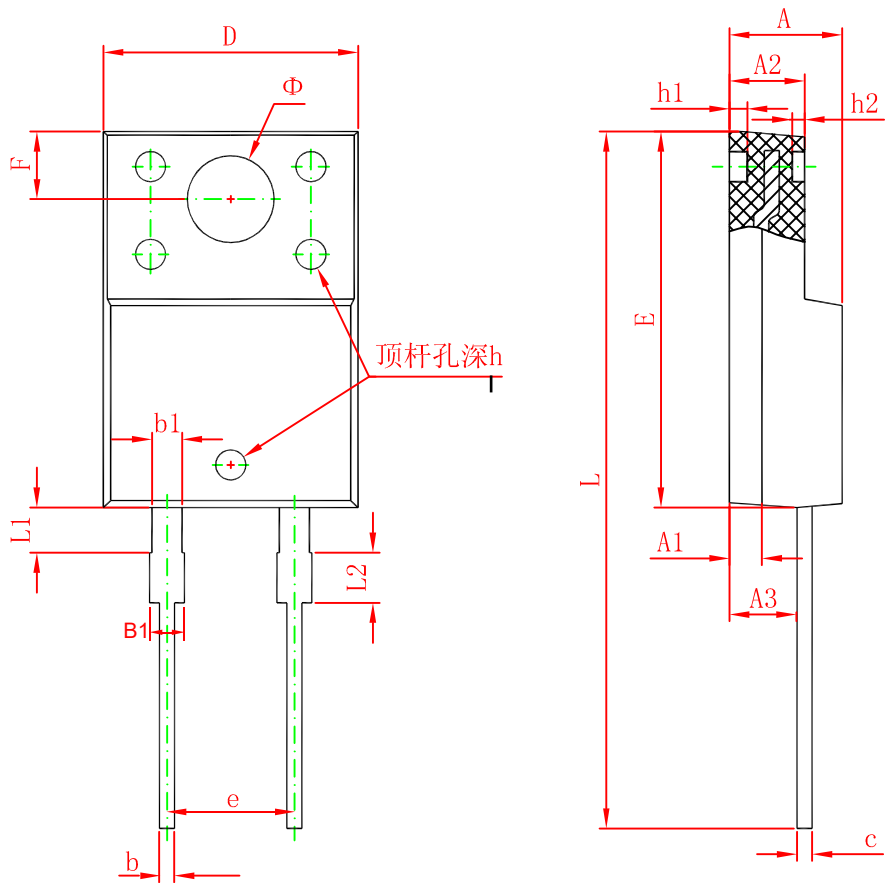
Typical Characteristics



Reverse Recovery Waveform and Definitions



TO-220F-2L Package Outline Dimensions



Symbol	Dimensions In Inches	
	Min.	Max.
A	4.300	4.700
A1	1.200 REF.	
A2	2.800	3.200
A3	2.500	2.900
b	0.710	0.910
b1	1.100	1.350
B1	1.150	1.400
c	0.500	0.750
D	9.960	10.360
E	14.800	15.200
e	5.080 TYP.	
F	2.700 REF.	
Φ	3.300 REF.	
h	0.000	0.300
h1	0.800 REF.	
h2	0.500 REF.	
L	28.000	28.400
L1	2.100	2.400
L2	1.300	1.700