

TO-220F-2L Plastic-Encapsulate Diodes

HYPERFAST RECTIFIER,FRED

MAIN CHARACTERISTICS

I_O	10A
V_{RRM}	600V
T_{rr}	15ns
T_j	175°C
$V_{F(typ)}$	1.3V(@$T_j=150^\circ\text{C}$)

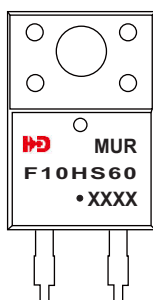
FEATURES

- 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

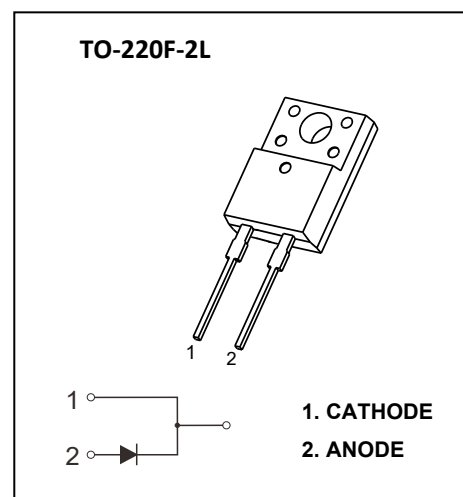


MURF10HS60= Device code

Solid dot = Green molding compound device

if none, the normal device

XXXX = Code



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

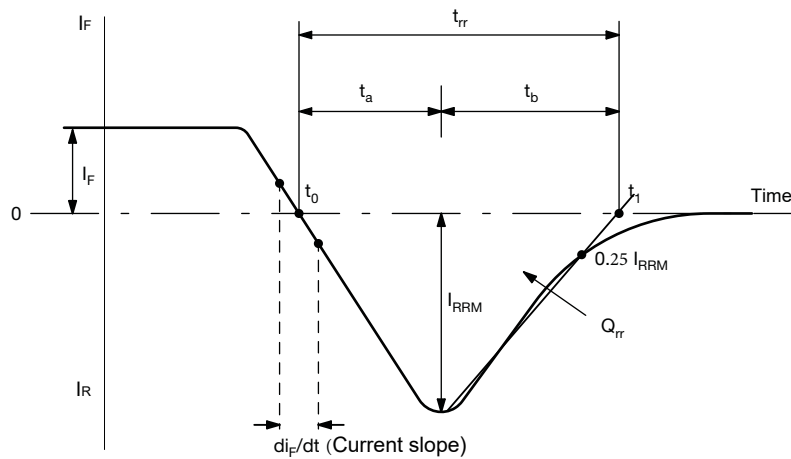
Symbol	Parameter	MURF10HS60	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average Forward Current($T_c=123^\circ\text{C}$)	10	A
$I_{F(RMS)}$	RMS Forward Current($T_c=123^\circ\text{C}$)	14	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	128	A
P_D	Power dissipation	44	W
$R_{\theta JC}$	Thermal Resistance From Junction to Case	3.4	$^\circ\text{C/W}$
T_j	Operating Junction Temperature Range	-55 ~ +175	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55 ~ +175	$^\circ\text{C}$

Typical Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	$I_R=100\mu A$	600			V
I_R	Reverse Current	$V_R=600V$			10	μA
					500	μA
V_F	Forward Voltage	$I_F=10A$		1.8	2.4	V
				1.3		V
C_{tot}	Total Capacitance	$V_R=200V, f=1MHz$		13		pF
t_{rr}	Reverse Recovery time	$I_F=0.5A, I_R=1A, I_{rr}=0.25A$		20		ns
		$I_F=1A, V_R=30V, di_F/dt = 200A/us$		15		ns

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ C$ unless otherwise specified)

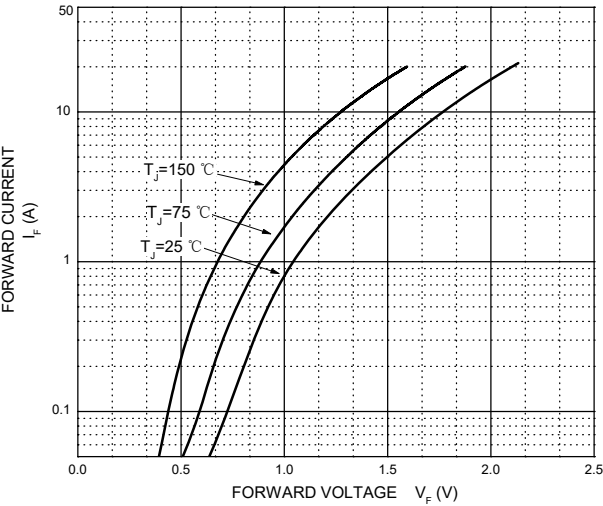
Symbol	Parameter	Test Comditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F=10A, V_R=400V,$ $di_F/dt=200A/\mu s$		30		ns
I_{RRM}	Max. Reverse Recovery Current			2.6		A
Q_{rr}	Reverse Recovery Charge			46.5		nC
t_{rr}	Reverse Recovery Time	$I_F=10A, V_R=400V,$ $di_F/dt=200A/\mu s, T_J=125^\circ C$		72		ns
I_{RRM}	Max. Reverse Recovery Current			5		A
Q_{rr}	Reverse Recovery Charge			217		nC
t_{rr}	Reverse Recovery Time	$I_F=10A, V_R=400V,$ $di_F/dt=600A/\mu s, T_J=125^\circ C$		40		ns
I_{RRM}	Max. Reverse Recovery Current			11.6		A
Q_{rr}	Reverse Recovery Charge			270		nC



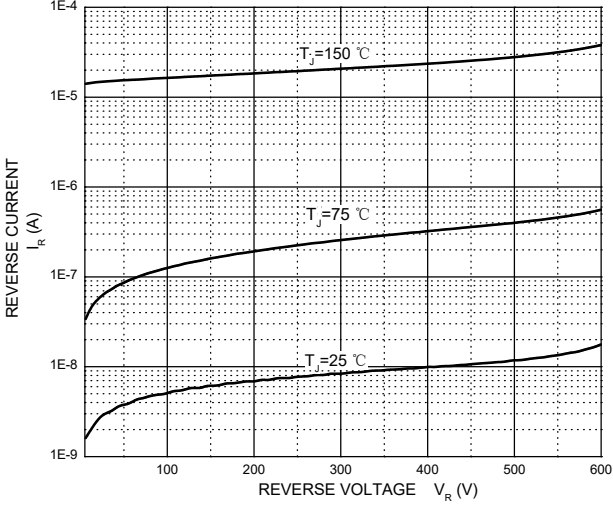
Reverse Recovery Waveform and Definitions

Typical Characteristics

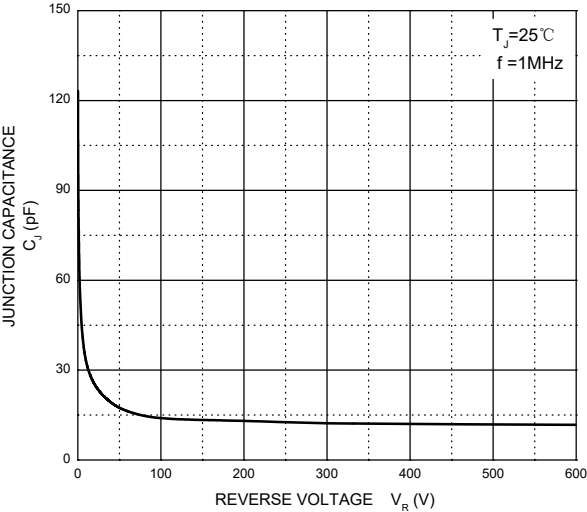
Forward Characteristics



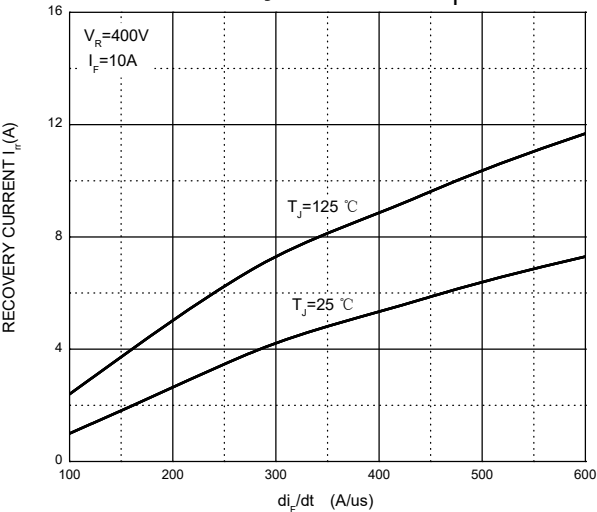
Reverse Characteristics



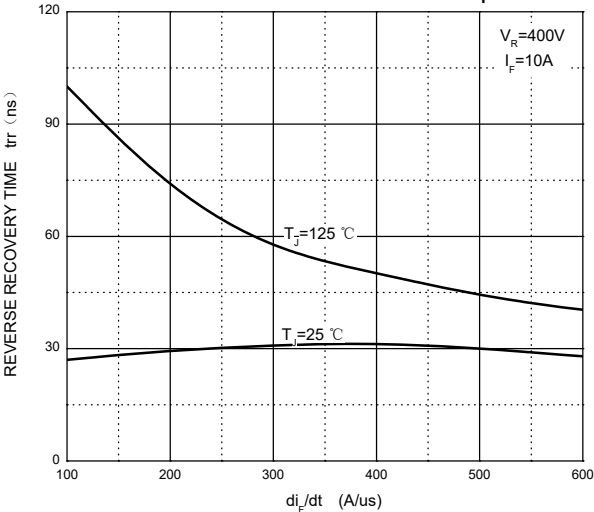
Capacitance Characteristics Per Diode



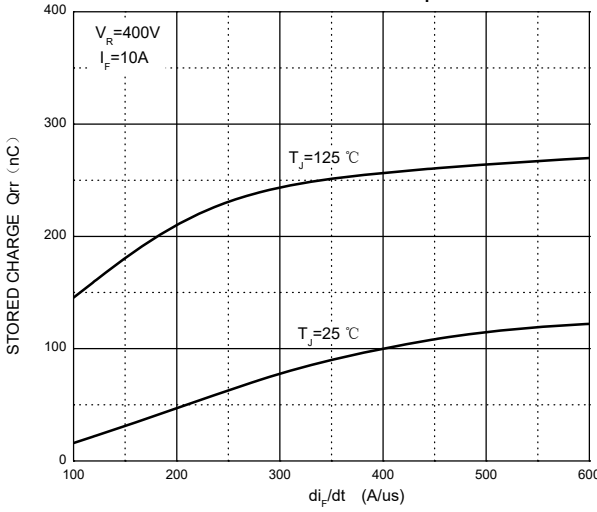
Recovery Current vs. di_F/dt



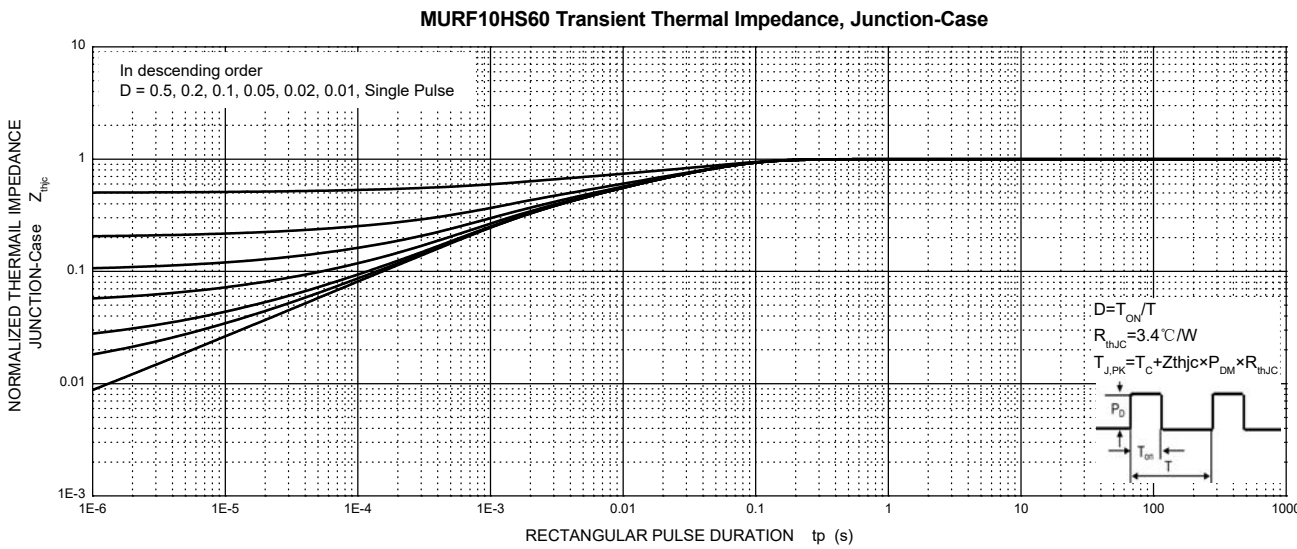
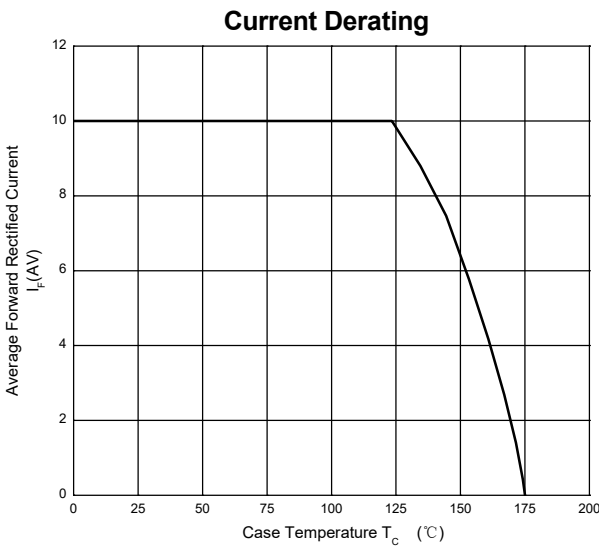
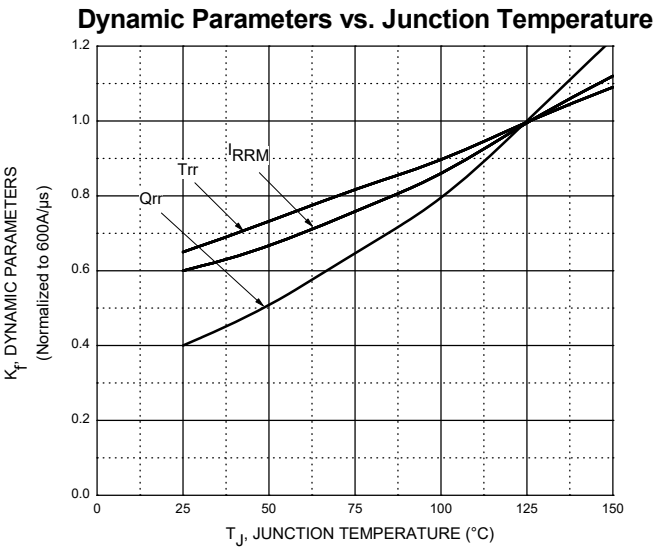
Reverse Recovery Time vs. di_F/dt



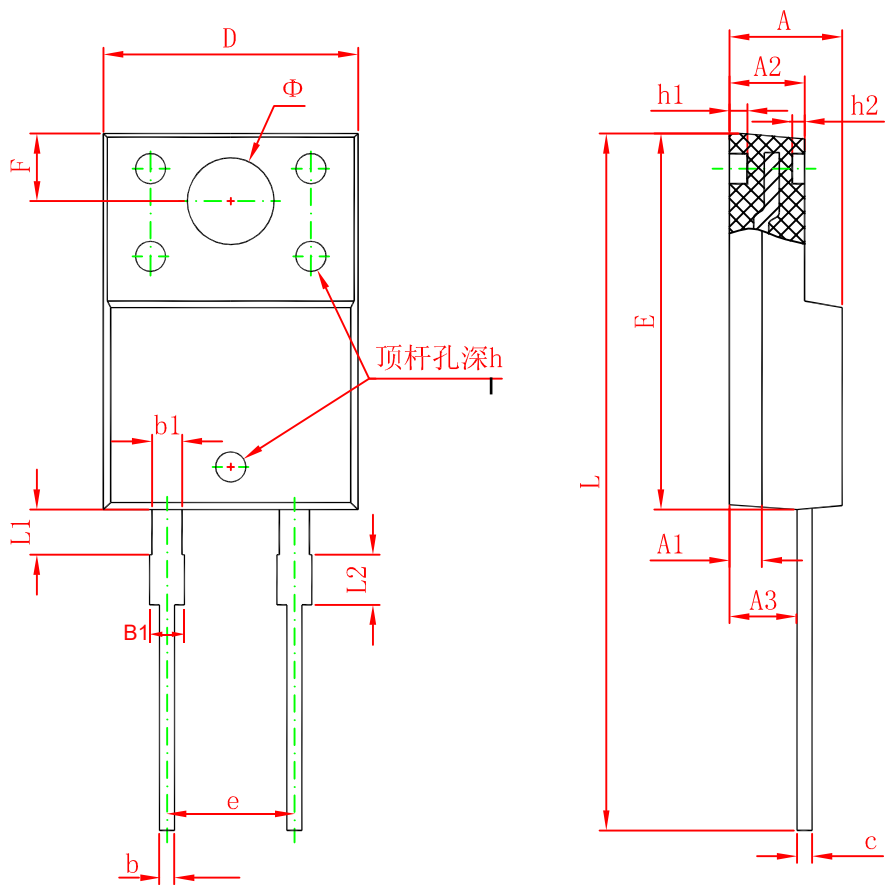
Stored Charge vs. di_F/dt



Typical Characteristics



TO-220F-2L Package Outline Dimensions



Symbol			Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.200 REF.		0.047 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.710	0.910	0.028	0.036
b1	1.100	1.350	0.043	0.053
B1	1.150	1.400	0.045	0.055
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	5.080 TYP.		0.200 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.300 REF.		0.130 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	2.100	2.400	0.082	0.094
L2	1.300	1.700	0.051	0.066