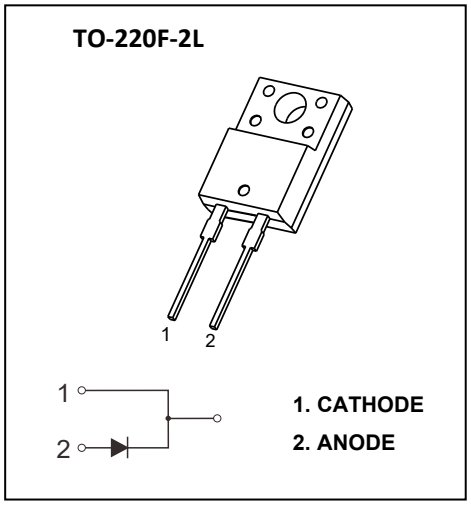
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

TO-220F-2L Plastic-Encapsulate Diode

MURF30H120 HYPERFAST RECTIFIER,FRED



MAIN CHARACTERISTICS

I_O	30A
V_{RRM}	1200V
T_{rr}	27ns
T_j	175℃
$V_{F(typ)}$	1.9V(@T_j=150℃)

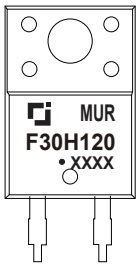
FEATURES

- 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



MURF30H120= 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	MURF30H120	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	1200	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average Forward Current(T_C=70℃)	30	A
$I_{F(RMS)}$	RMS Forward Current(T_C=70℃)	42	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	270	A
P_D	Power dissipation	60	W
$R_{\Theta JC}$	Thermal Resistance From Junction to Case	2.5	℃/W
T_j	Operating Junction Temperature Range	-55 ~ +175	℃
T_{stg}	Storage Temperature Range	-55 ~ +175	℃

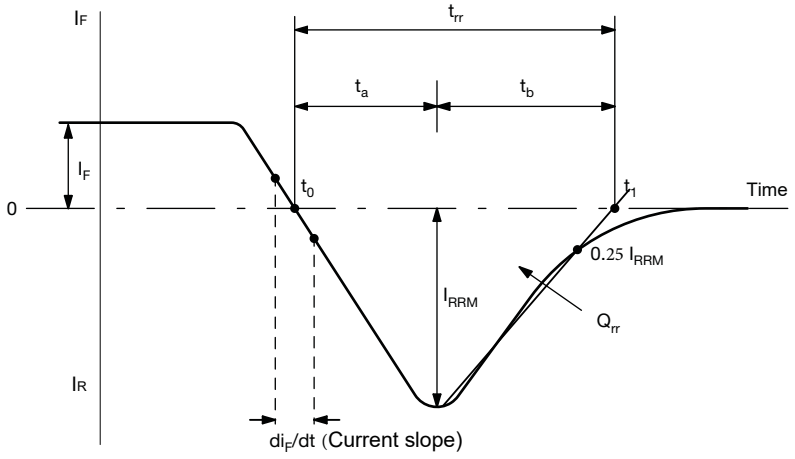
Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	IR=100μA		1200			V
I_R	Reverse Current	VR=1200V	T_j=25℃			10	μA
			T_j=150℃			1	mA
V_F	Forward Voltage	IF=30A	T_j=25℃		2.6	3.2	V
			T_j=150℃		1.9		V
C_{tot}	Total Capacitance	VR=200V, f=1MHz			20		pF
trr	Reverse Recovery time	IF=0.5A, IR=1A,Irr=0.25A			37		ns
		IF=1A,VR=30V, di_F/dt =200A/us			27		ns

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

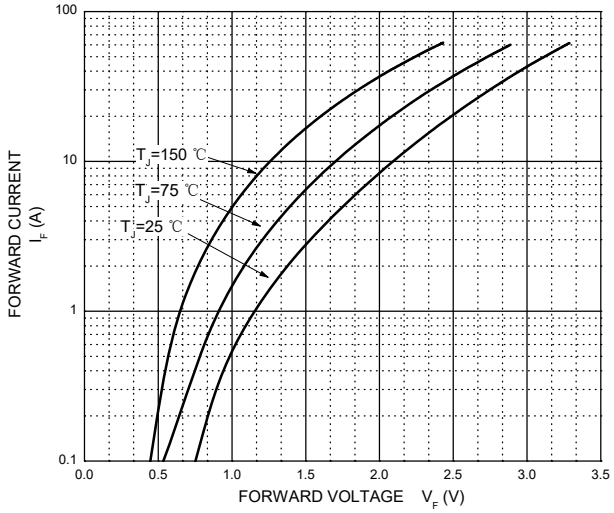
Symbol	Parameter	Test Comditions	Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	IF=30A, VR=600V, di_F/dt=200A/μs		170		ns
I_{RRM}	Max. Reverse Recovery Current			5		A
Qrr	Reverse Recovery Charge			486		nC
trr	Reverse Recovery Time	IF=30A, VR=600V, di_F/dt=200A/μs, T_j=125℃		241		ns
I_{RRM}	Max. Reverse Recovery Current			12		A
Qrr	Reverse Recovery Charge			1568		nC
trr	Reverse Recovery Time	IF=30A, VR=600V, di_F/dt=600A/μs, T_j=125℃		150		ns
I_{RRM}	Max. Reverse Recovery Current			29		A
Qrr	Reverse Recovery Charge			2668		nC



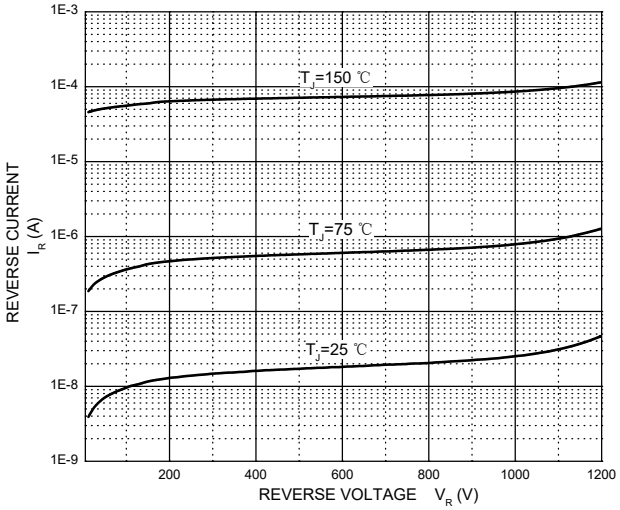
Reverse Recovery Waveform and Definitions

Typical Characteristics

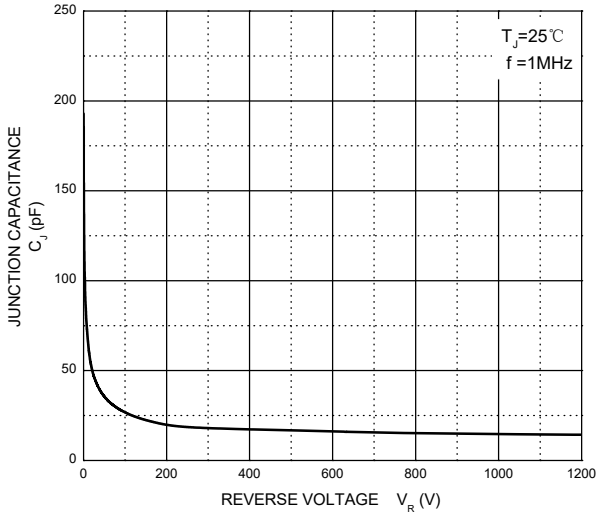
Forward Characteristics



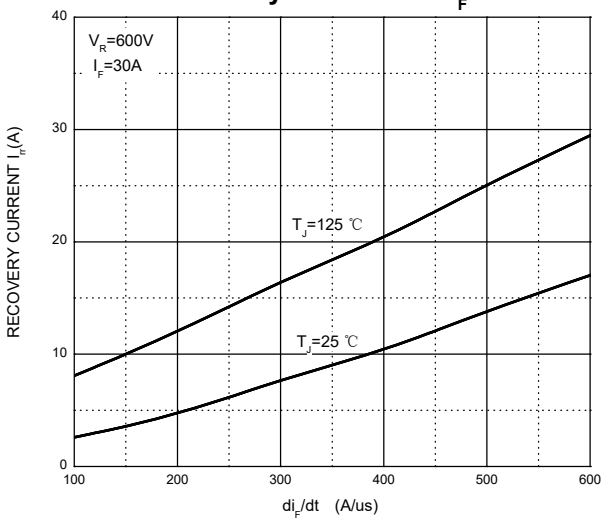
Reverse Characteristics



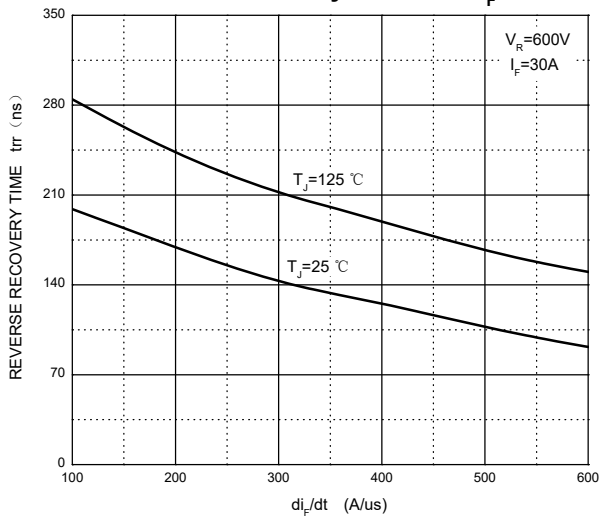
Capacitance Characteristics



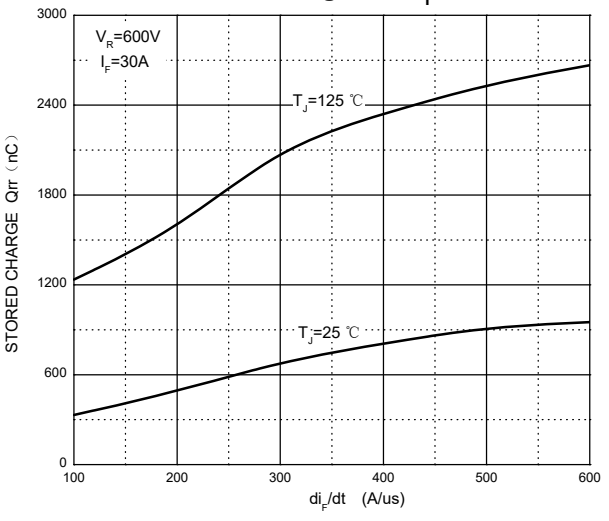
Recovery Current vs. di_F/dt



Reverse Recovery Time vs. di_F/dt

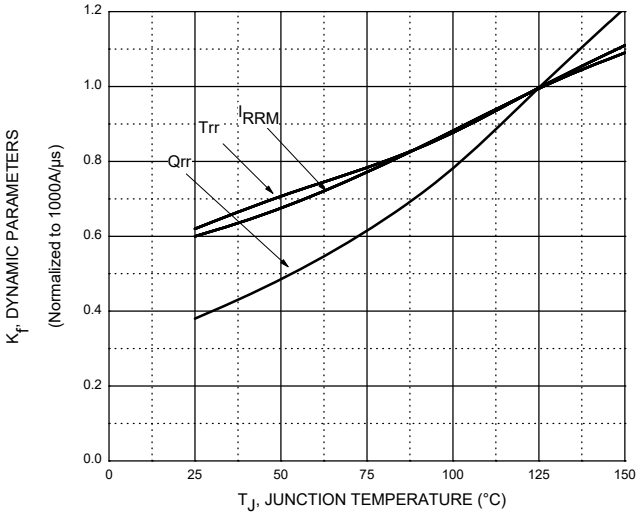


Stored Charge vs. di_F/dt

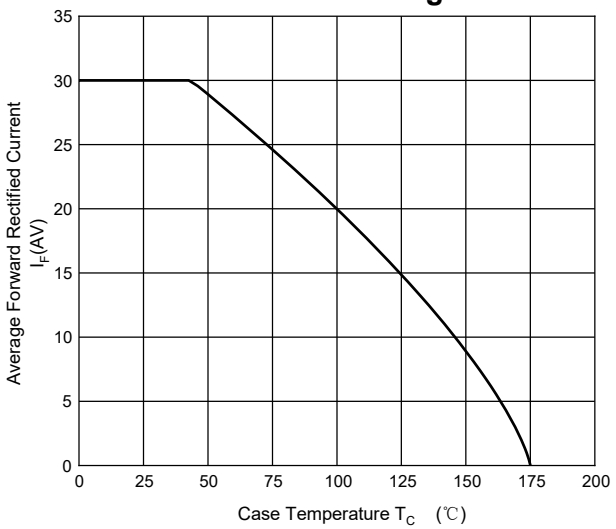


Typical Characteristics

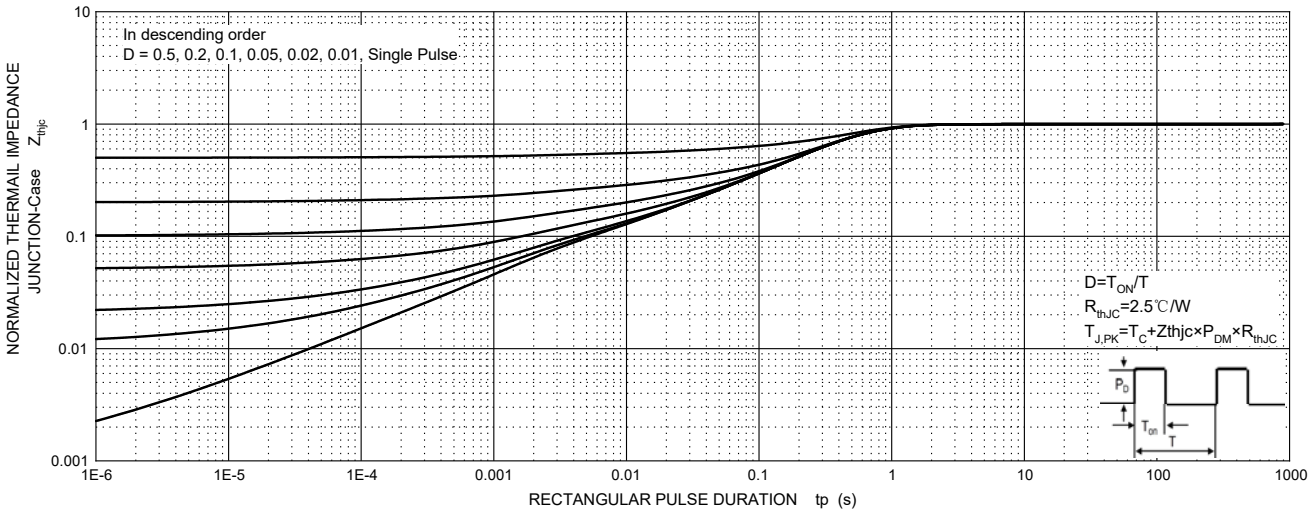
Dynamic Parameters vs. Junction Temperature



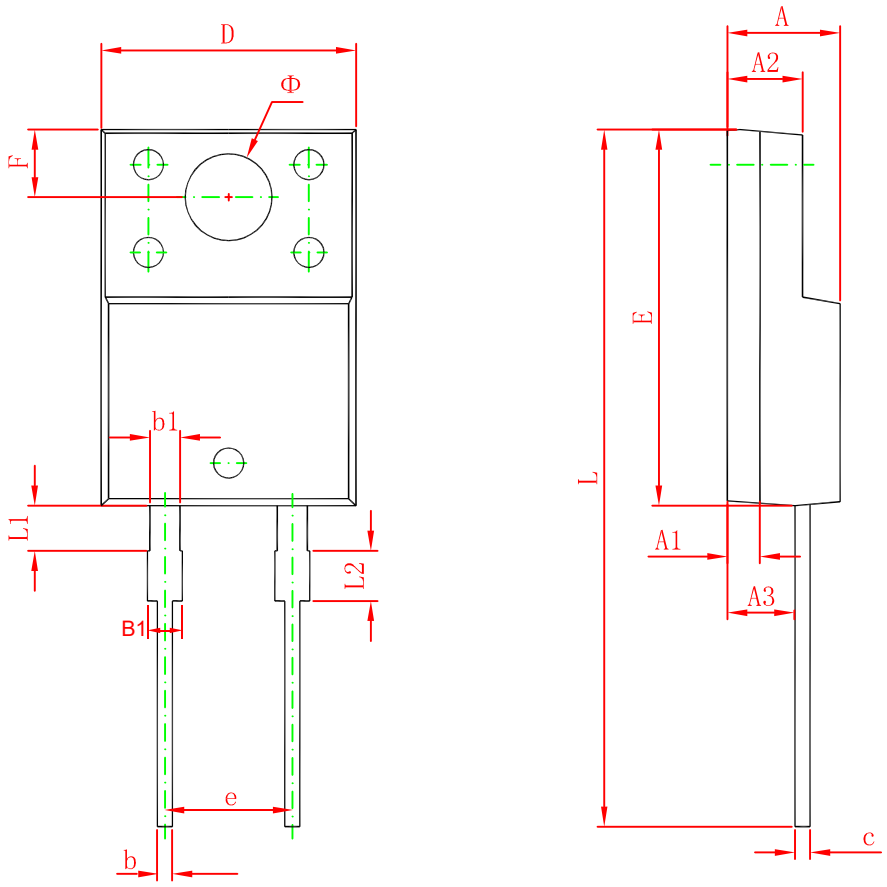
Current Derating



MURF30H120 Transient Thermal Impedance, Junction-Case



TO-220F-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.200 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.	
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