

TO-247-2L Plastic-Encapsulate Diodes

HYPERFAST RECTIFIER,FRED

MAIN CHARACTERISTICS

I_O	30A
V_{RRM}	600V
T_{rr}	29ns
T_j	175°C
$V_{F(typ)}$	1.05V(@ $T_j=150^{\circ}C$)

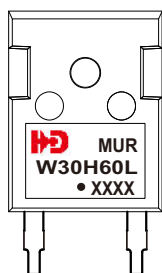
FEATURES

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

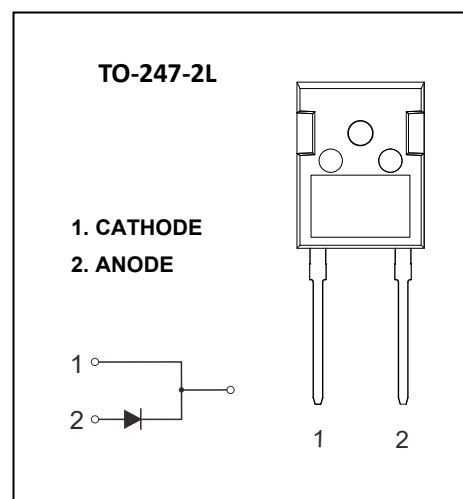
APPLICATIONS

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



MURW30H60L = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code



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

Symbol	Parameter	MURW30H60L	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average Forward Current($T_c=130^{\circ}C$)	30	A
$I_{F(RMS)}$	RMS Forward Current($T_c=130^{\circ}C$)	42	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	344	A
P_D	Power dissipation	187.5	W
$R_{\theta JC}$	Thermal Resistance From Junction to Case	0.8	$^{\circ}C/W$
T_j	Operating Junction Temperature Range	-55 ~ +175	$^{\circ}C$
T_{stg}	Storage Temperature Range	-55 ~ +175	$^{\circ}C$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

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

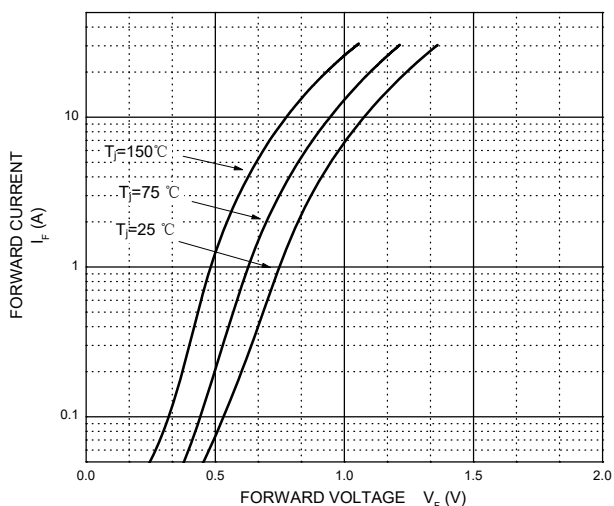
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	$I_R=100\mu\text{A}$		600			V
I_R	Reverse Current	$V_R=600\text{V}$	$T_J=25^{\circ}\text{C}$			10	μA
			$T_J=150^{\circ}\text{C}$			500	μA
V_F	Forward Voltage	$I_F=30\text{A}$	$T_J=25^{\circ}\text{C}$		1.36	1.6	V
			$T_J=150^{\circ}\text{C}$		1.05		V
C_{tot}	Total Capacitance	$V_R=200\text{V}, f=1\text{MHz}$			45		pF
t_{rr}	Reverse Recovery time	$I_F=0.5\text{A}, I_R=1\text{A}, I_{rr}=0.25\text{A}$			38		ns
		$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=200\text{A}/\mu\text{s}$			29		ns

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

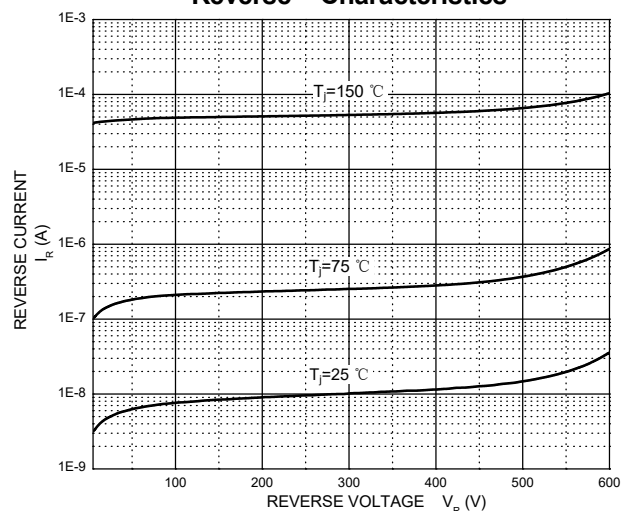
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F=30\text{A}, V_R=400\text{V}, di_F/dt=200\text{A}/\mu\text{s}$		74		ns
I_{RRM}	Max. Reverse Recovery Current			4.5		A
Q_{rr}	Reverse Recovery Charge			202		nC
t_{rr}	Reverse Recovery Time	$I_F=30\text{A}, V_R=400\text{V}, di_F/dt=200\text{A}/\mu\text{s}, T_J=125^{\circ}\text{C}$		114		ns
I_{RRM}	Max. Reverse Recovery Current			11		A
Q_{rr}	Reverse Recovery Charge			680		nC
t_{rr}	Reverse Recovery Time	$I_F=30\text{A}, V_R=400\text{V}, di_F/dt=500\text{A}/\mu\text{s}, T_J=125^{\circ}\text{C}$		79		ns
I_{RRM}	Max. Reverse Recovery Current			24		A
Q_{rr}	Reverse Recovery Charge			1037		nC

Typical Characteristics

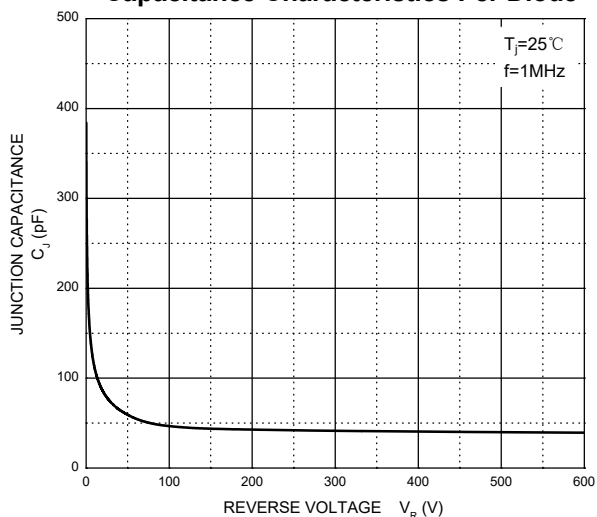
Forward Characteristics



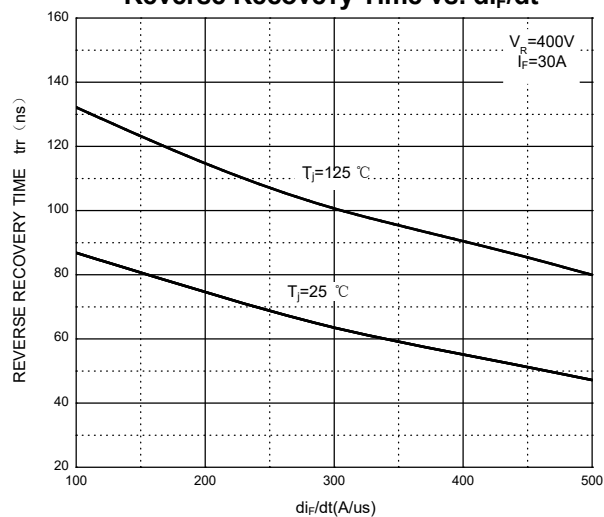
Reverse Characteristics



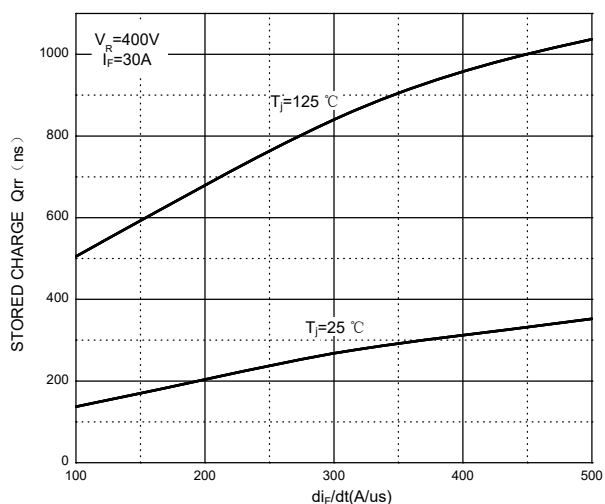
Capacitance Characteristics Per Diode



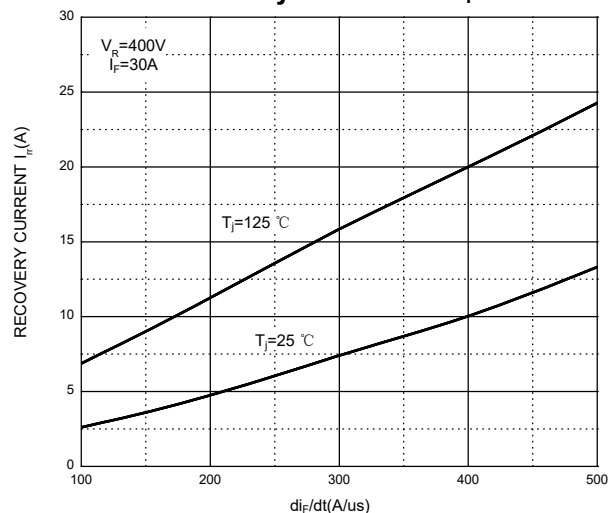
Reverse Recovery Time vs. di_F/dt



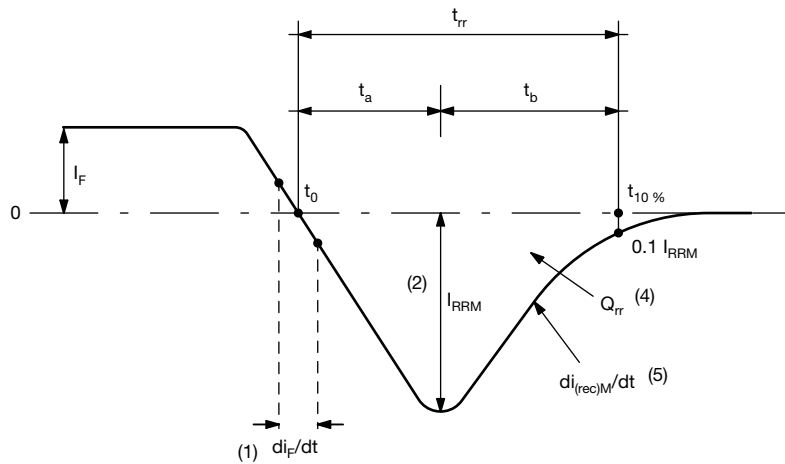
Stored Charge vs. di_F/dt



Recovery Current vs. di_F/dt

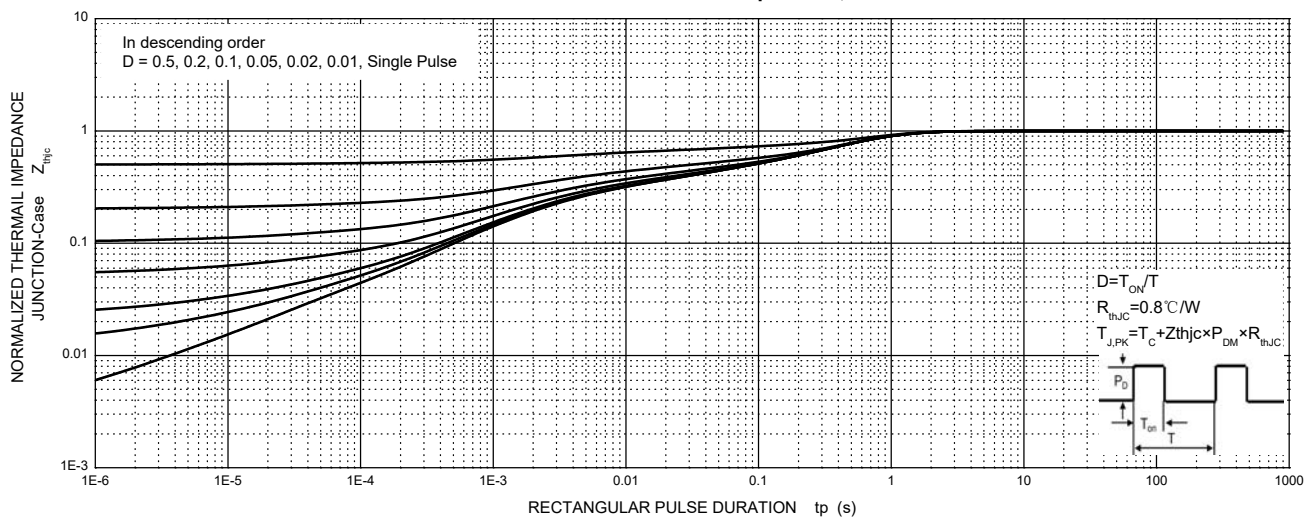


Typical Characteristics

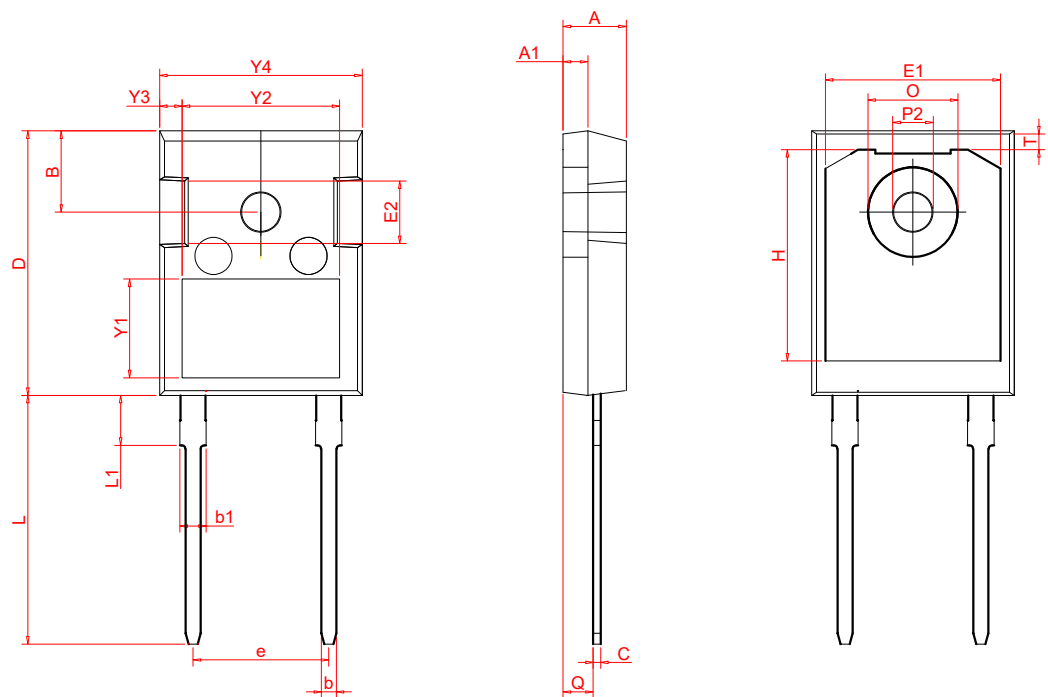


Reverse Recovery Waveform and Definitions

MURW30H60L Transient Thermal Impedance, Junction-Case



TO-247-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.70	5.30	0.185	0.209
A1	1.70	2.30	0.067	0.091
C	0.45	0.75	0.018	0.030
Q	2.20	2.60	0.087	0.102
O	7.10	7.40	0.280	0.291
P2	3.45	3.75	0.136	0.148
L	19.00	21.00	0.748	0.827
L1	4.20	4.50	0.165	0.177
b	1.00	1.40	0.039	0.055
b1	1.80	2.25	0.071	0.089
e	10.65	10.95	0.419	0.431
D	20.95	21.35	0.825	0.841
Y1	7.60	8.10	0.299	0.319
Y2	11.00	13.00	0.433	0.512
Y3	1.75	2.25	0.069	0.089
Y4	16.00	16.40	0.630	0.646
E2	4.60	4.90	0.181	0.193
T	1.35REF		0.053REF	
H	16.25REF		0.640REF	
E1	14.00REF		0.551REF	
B	6.55REF		0.258REF	