600V 8A Fast Recovery Diode

Description

FRED from Lonten utilizes advanced processing techniques to achieve ultra-fast recovery times and higher forward current. Its soft recovery characteristics and high reliability suit for wide industrial applications.

Features

- Low power loss, high efficiency
- High reliability
- RoHS product

Applications

- Active power factor correction
- Switch power supply
- PFC

Product Summary

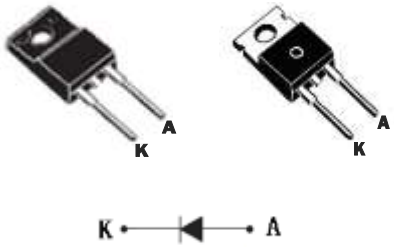
600V

8A

FRED

TO-220 Pin Configuration

TO-220HF-2L TO-220C-2L



Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Maximum D.C. Reverse Voltage	V_R	600	V
Maximum Repetitive Reverse Voltage	V_{RRM}	600	V
Average Forward Current(Tc = 110℃)	$I_{F(AV)}$	8	A
RMS Forward Current(Tc = 110℃)	$I_{F(RMS)}$	21	A
Non-Repetitive Surge Forward Current(TJ = 45℃,t=10ms,50Hz,Sine)	I_{FSM}	80	A
Power Dissipation	P_D	83	W
Junction Temperature Range	T_J	-50 to +150	℃
Storage Temperature Range	T_{STG}	-50 to +150	℃
Module-to-Sink(Recommended M3)	Torque	1.1	Nm
	Weight	2.1	g

Thermal Characteristics TO-220HF2L

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.5	°C/W

Thermal Characteristics TO-220C2L

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.2	°C/W

Package Marking and Ordering Information

Device	Device Package	Marking
LDD60U08W4	TO-220HF-2L	LDD60U08W4
LDC60U08W4	TO-220C-2L	LDC60U08W4

Electrical Characteristics

T_J = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	V_R=600V	--	--	50	uA
		V_R=600V, T_J=125℃	--	--	200	uA
V_F	Forward Voltage	I_F=8A	--	1.8	2.4	V
		I_F=8A, T_J=125℃	--	1.5	2.1	V
t_{rr}	Reverse Recovery Time	I_F=1A, V_R=30V, di_F/d_t=-200A/us	--	19	30	ns

Electrical Characteristics Diagrams

Figure 1. I_F vs V_F

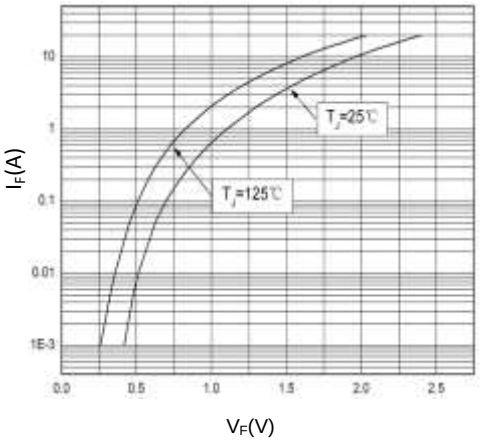


Figure 2. I_R vs V_R

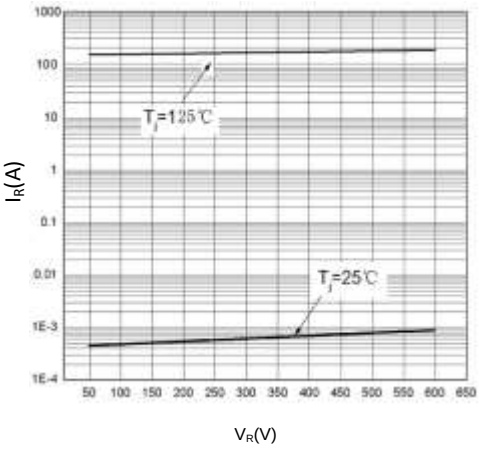


Figure3. Diode Reverse Recovery Test Circuit and Waveform

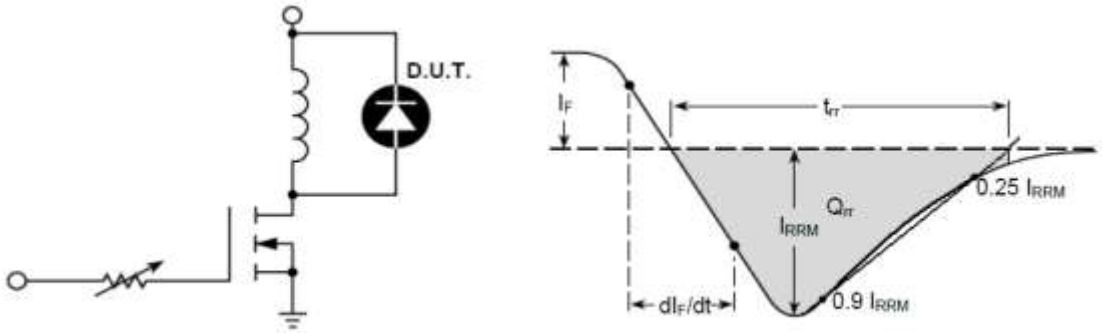
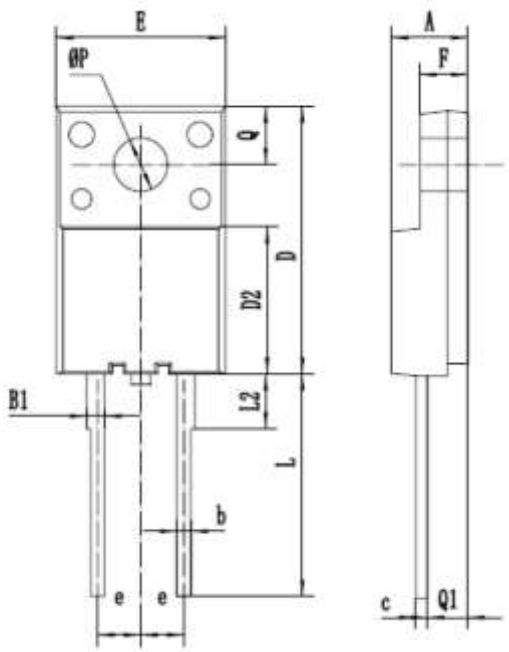


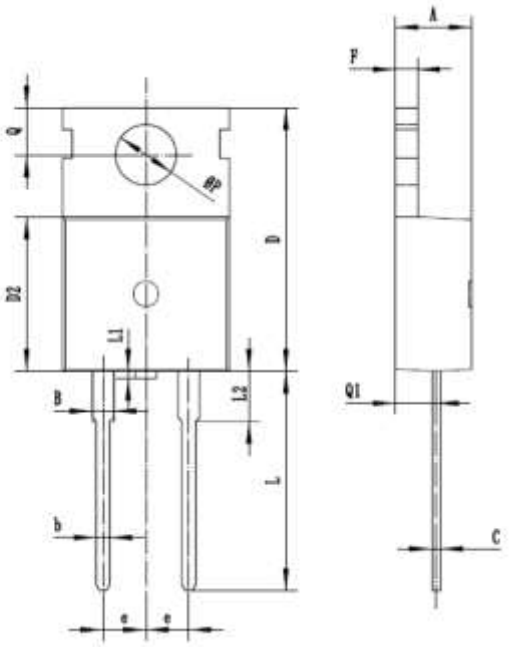
Figure4. Package Outline Dimensions in Millimeters

Mechanical Dimensions for TO-220HF-2L



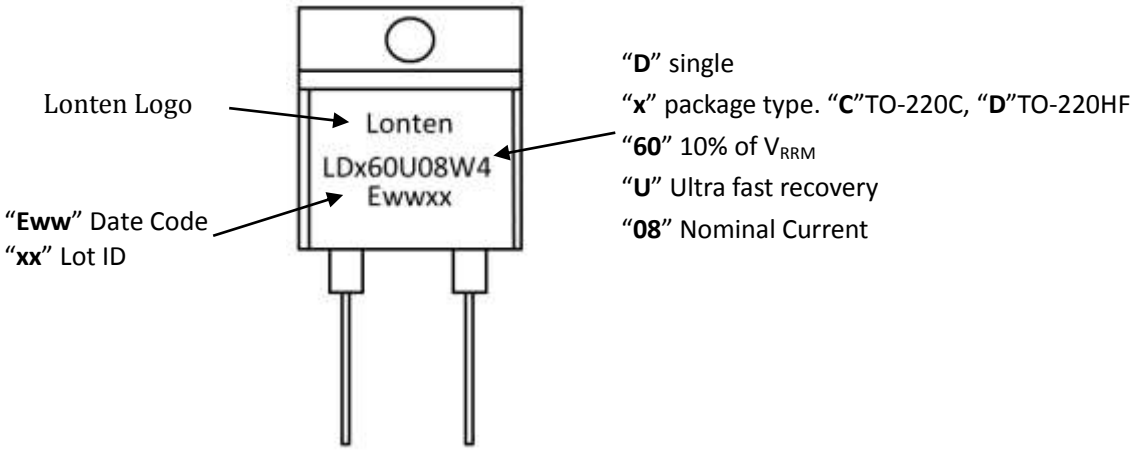
Symbol	MIN	MAX
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.7
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54(TYP.)	
F	2.3	3.3
L	13.0	14.0
L2	3.1	3.5
ΦP	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5

Mechanical Dimensions for TO-220C-2L



Symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L1	0.20	0.50
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.5	3.80

Marking Information



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