

600V 10A 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

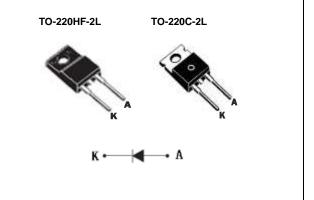
- Active power factor correction
- Switch power supply
- ◆ PFC

Product Summary

600V 10A

FRED

TO-220 Pin Configuration



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°C)	I _{F(AV)}	10	Α
RMS Forward Current(Tc = 110 °C)	I _{F(RMS)}	21	Α
Non-Repetitive Surge Forward Current(TJ =	I _{FSM}	150	Α
45℃,t=10ms,50Hz,Sine)			
Power Dissipation	P _D	83	W
Junction Temperature Range	TJ	-50 to +150	$^{\circ}$
Storage Temperature Range	T _{STG}	-50 to +150	$^{\circ}$
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 _{eJC}	3.5	°C/W

Thermal Characteristics TO-220C2L

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	2.2	°C/W

LDC60U10W4\LDD60U10W4

Package Marking and Ordering Information

Device	Device Package	Marking
LDD60U10W4	TO-220HF-2L	LDD60U10W4
LDC60U10W4	TO-220C-2L	LDC60U10W4

Electrical Characteristics T_J = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Тур.	Max.	Unit
I _{RM} Reverse Leakage Current	Daversa Laskaga Current	V _R =600V			50	uA
	V _R =600V, T _J =125°C			200	uA	
V _F Forward Voltage	I _F =10A		1.8	2.4	V	
	I _F =10A, 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		20	30	ns

Electrical Characteristics Diagrams

Figure 1. I_F vs V_F

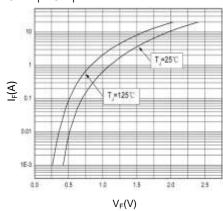


Figure 3.C_T vs V_R

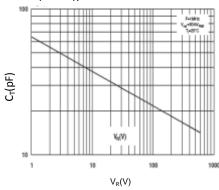


Figure 5. I_R vs T_C

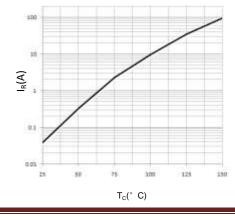


Figure 2. I_R vs V_R

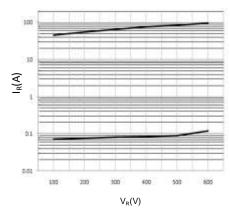


Figure 4. I_F vs T_C

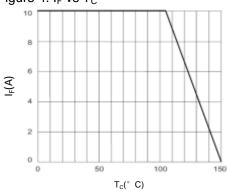
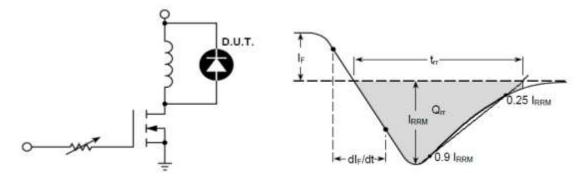




Figure 6. Diode Reverse Recovery Test Circuit and Waveform

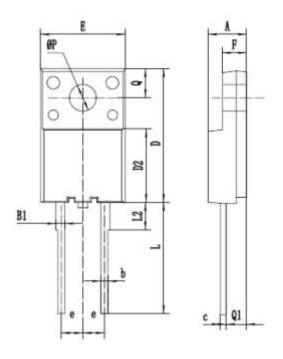


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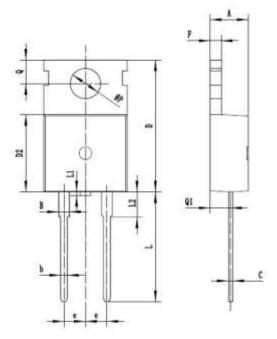
Figure 7. Package OutlineDimensions in Millimeters

Mechanical Dimensions for TO-220HF-2L



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

Mechanical Dimensions for TO-220C-2L

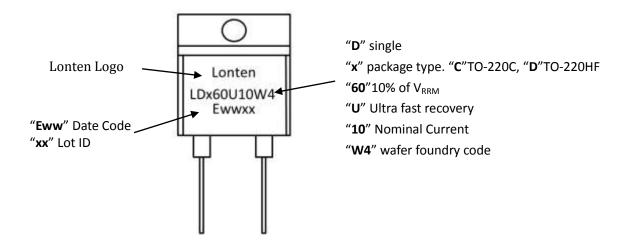


Symbol	MIN	MAX
Α	4.30	4.70
В	1.22	1.40
b	0.70	0.95
С	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
е	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L1	0.20	0.50
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
Р	3.5	3.80

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Marking Information



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