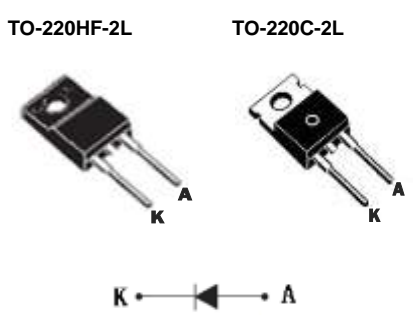


600V 10A Fast Recovery Diode

<p>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.</p> <p>Features</p> <ul style="list-style-type: none"> ◆ Low power loss, high efficiency ◆ High reliability ◆ RoHS product <p>Applications</p> <ul style="list-style-type: none"> ◆ Active power factor correction ◆ Switch power supply ◆ PFC 	<p>Product Summary 600V 10A FRED</p> <p>TO-220 Pin Configuration</p> <div style="text-align: center;">  </div>
--	--

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(T _c = 110°C)	I _{F(AV)}	10	A
RMS Forward Current(T _c = 110°C)	I _{F(RMS)}	21	A
Non-Repetitive Surge Forward Current(T _J = 45°C, t=10ms, 50Hz, Sine)	I _{FSM}	150	A
Power Dissipation	P _D	83	W
Junction Temperature Range	T _J	-50 to +150	°C
Storage Temperature Range	T _{STG}	-50 to +150	°C
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 _{θJC}	3.5	°C/W

Thermal Characteristics TO-220C2L

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

Package Marking and Ordering Information

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

Electrical Characteristics

$T_J = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	$V_R=600\text{V}$	--	--	50	μA
		$V_R=600\text{V}, T_J=125^\circ\text{C}$	--	--	200	μA
V_F	Forward Voltage	$I_F=10\text{A}$	--	1.8	2.4	V
		$I_F=10\text{A}, T_J=125^\circ\text{C}$	--	1.5	2.1	V
t_{rr}	Reverse Recovery Time	$I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$	--	20	30	ns

Electrical Characteristics Diagrams

Figure 1. I_F vs V_F

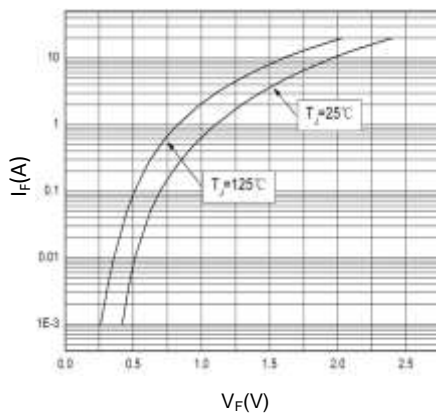


Figure 2. I_R vs V_R

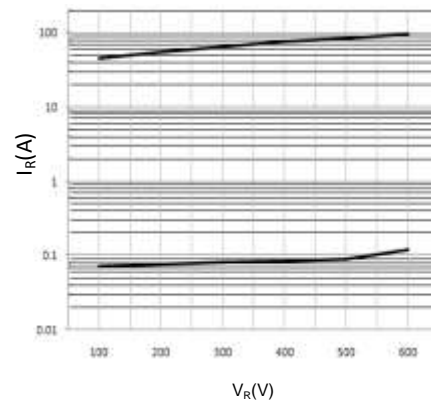


Figure 3. C_T vs V_R

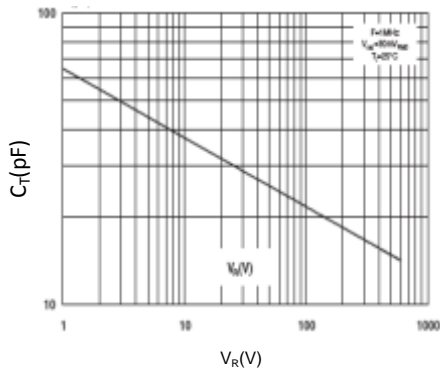


Figure 4. I_F vs T_C

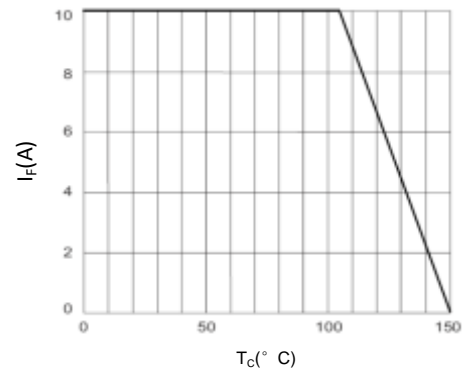


Figure 5. I_R vs T_C

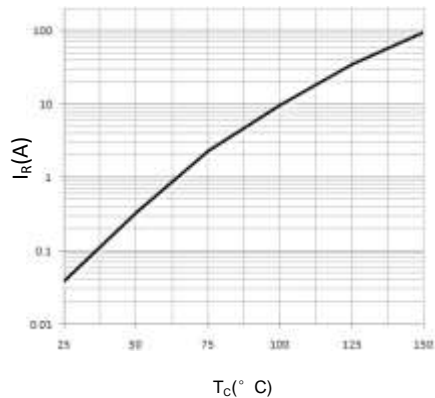


Figure 6. Diode Reverse Recovery Test Circuit and Waveform

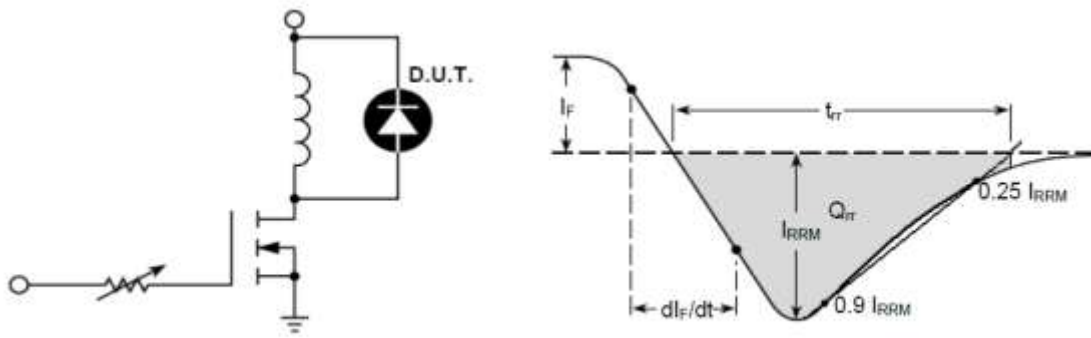
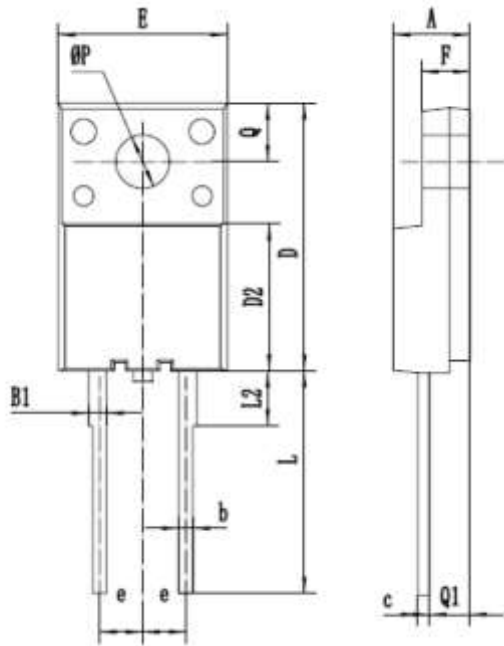


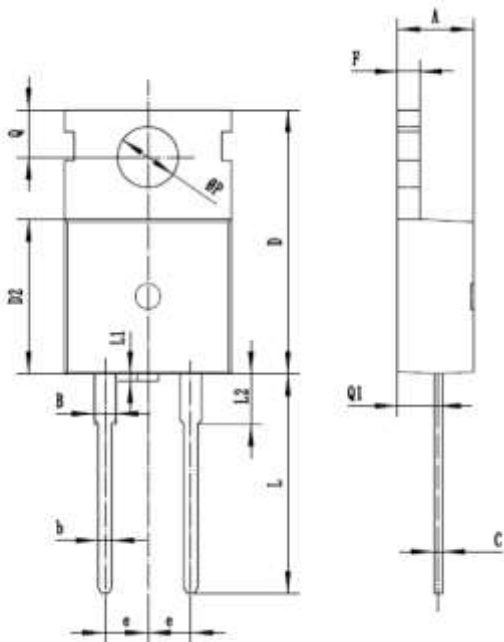
Figure 7. Package Outline Dimensions in Millimeters

Mechanical Dimensions for TO-220HF-2L



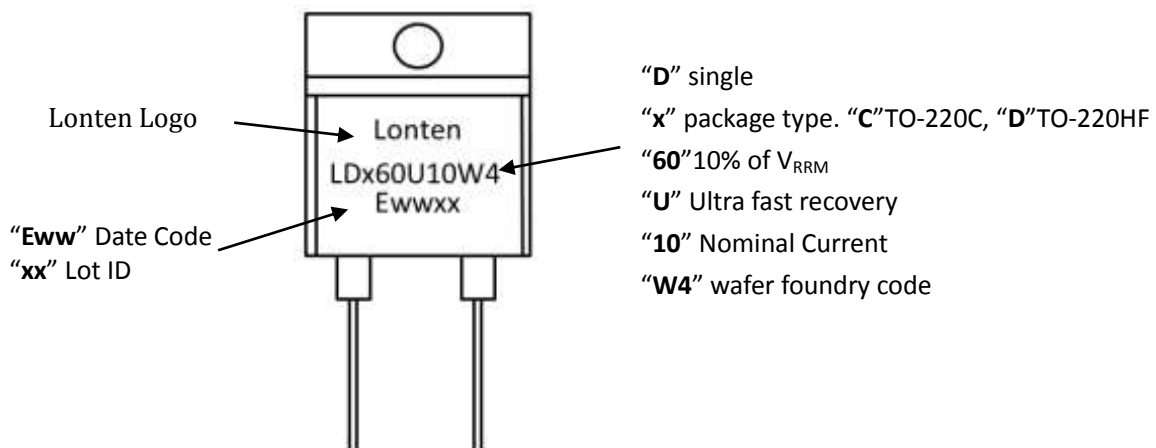
Symbol	MIN	MAX
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.7
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54(TYP.)	
F	2.3	3.3
L	13.0	14.0
L2	3.1	3.5
ΦP	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5

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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