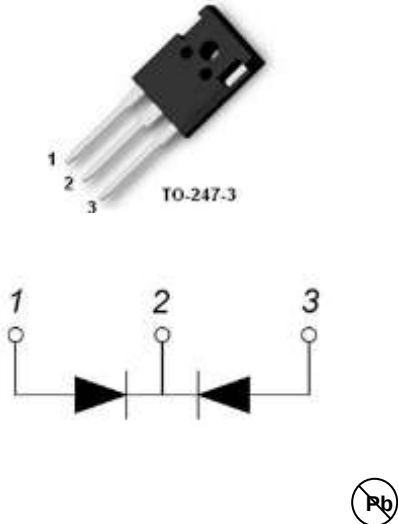


600V 30A Ultra-fast Recovery Diode

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 ◆ Ultra-fast Recovery Time ◆ Soft Recovery Characteristics ◆ Low Recovery Loss ◆ Low Forward Voltage ◆ High Surge Current Capability ◆ Low Leakage Current Applications ◆ Freewheeling, Snubber, Clamp ◆ Inversion Welder ◆ PFC ◆ Plating Power Supply ◆ Ultrasonic Cleaner and Welder ◆ Converter & Chopper ◆ UPS	Product Summary 600V 30A FRED TO-247 Pin Configuration 
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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 _{R RM}	600	V
Average Forward Current(T _C = 110°C,Per Diode)	I _{F(AV)}	15	A
Average Forward Current(T _C = 110°C,Per Package)		30	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	96	W
Junction Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Module-to-Sink(Recommended M3)	Torque	1.1	Nm
	Weight	6.0	g

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.3	$^{\circ}C/W$

Package Marking and Ordering Information

Device	Device Package	Marking
LMB60U30W4	TO-247	LMB60U30W4

Electrical Characteristics

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{RM}	Reverse Leakage Current	$V_R=600V$	--	--	10	μA
		$V_R=600V, T_J=125^{\circ}C$	--	--	10	mA
V_F	Forward Voltage	$I_F=15A$	--	2.0	2.4	V
		$I_F=15A, T_J=125^{\circ}C$	--	1.6		V
t_{rr}	Reverse Recovery Time	$I_F=1A, V_R=30V,$ $di_F/dt=-200A/\mu s$	--	18	--	ns
t_{rr}	Reverse Recovery Time	$V_R=300V, I_F=15A$	--	25	--	ns
I_{RRM}	Max. Reverse Recovery Current	$di_F/dt=-200A/\mu s, T_J=25^{\circ}C$	--	2.5	--	A
t_{rr}	Reverse Recovery Time	$V_R=300V, I_F=15A$ $di_F/dt=-200A/\mu s, T_J=125^{\circ}C$	--	90	--	ns
I_{RRM}	Max. Reverse Recovery Current		--	5.5	--	A
S			--	1.9	--	--

Electrical Characteristics Diagrams

Figure 1. Forward Voltage Drop vs Forward Current

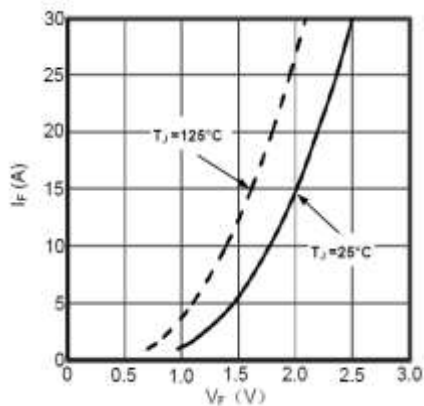


Figure 2. Reverse Recovery Time vs di_F/dt

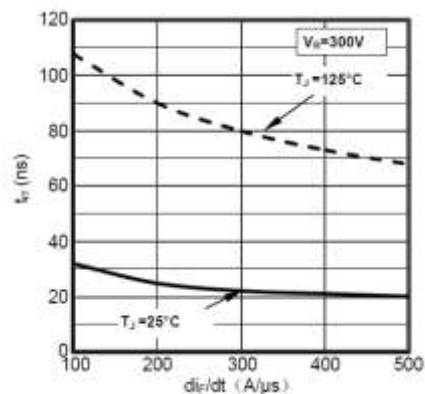


Figure 3. Reverse Recovery Current vs di_F/dt

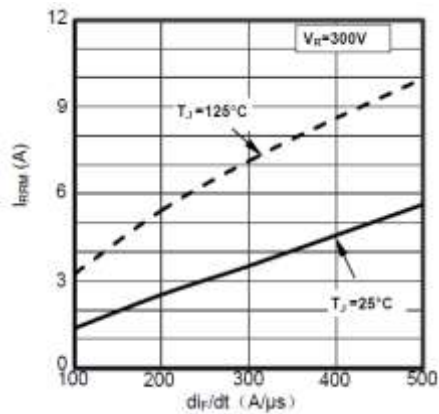


Figure 4. Reverse Recovery Charge vs di_F/dt

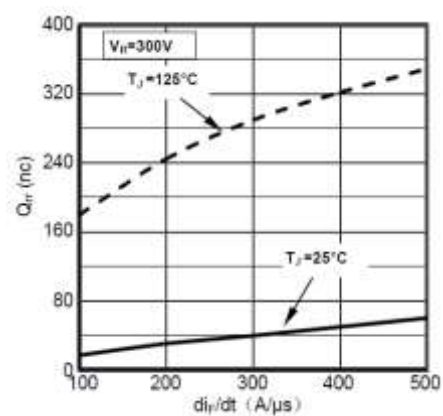


Figure 5. Forward current vs Case temperature

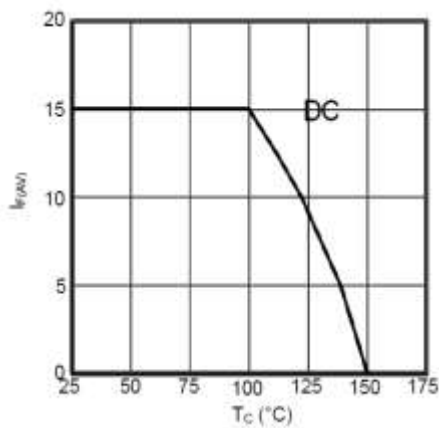


Figure 6. Transient Thermal Impedance

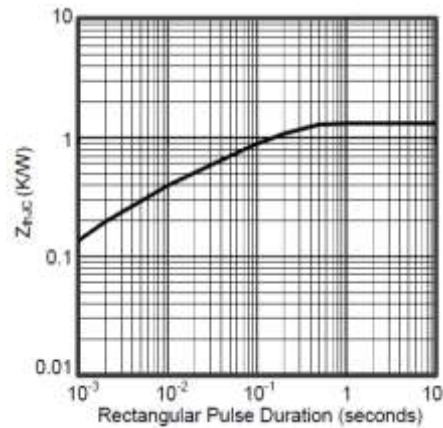


Figure 7. Diode Reverse Recovery Test Circuit and Waveform

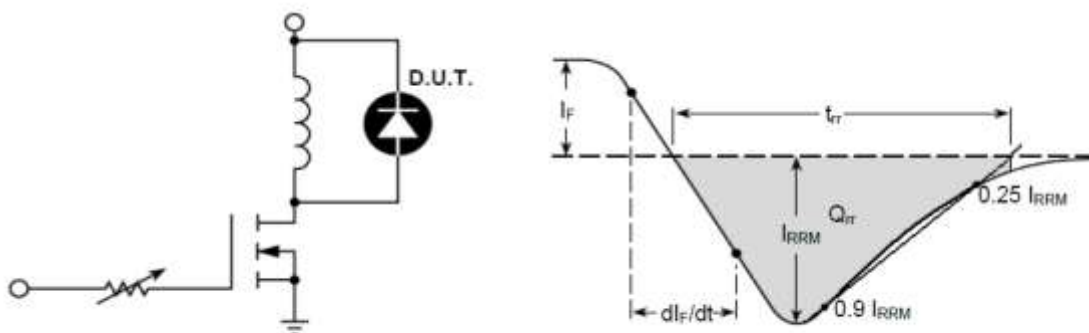
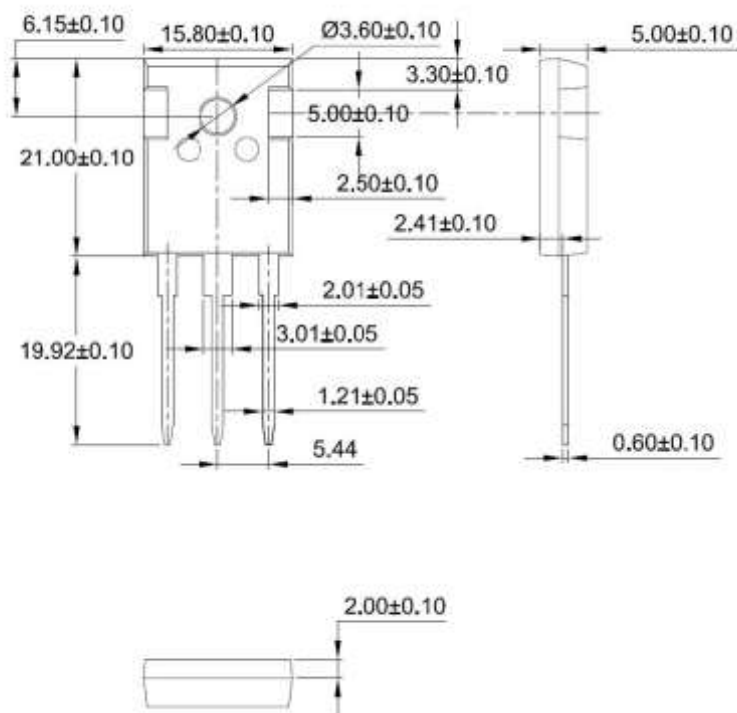
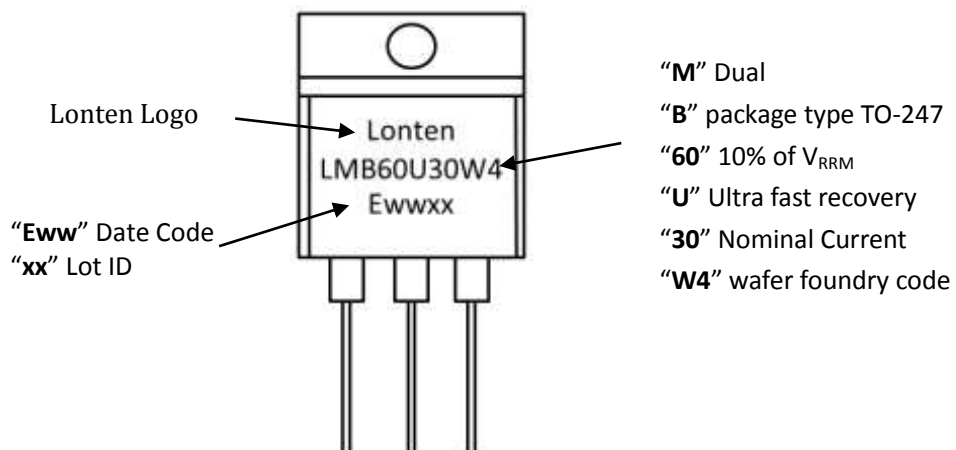


Figure8. Package Outline

Dimensions in Millimeters



Marking Information



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