

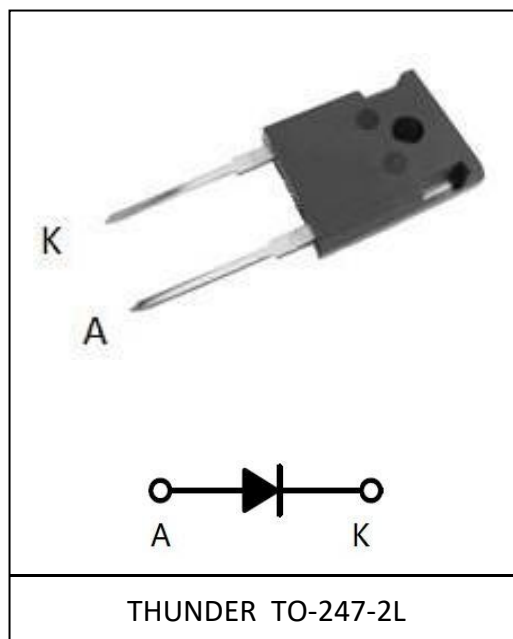
FRED

Ultrafast Soft Recovery Diode, 40A

Features:

- Ultrafast Recovery
- 175°C operating junction temperature
- High frequency operation
- Low power loss, less RFI and EMI
- Low I_R value
- High surge capacity
- Epitaxial chip construction

Product Summary	
V_R	1200 V
$I_F(AV)$	40A
t_{rr}	40 ns



Description/Applications

These diodes are optimized to less losses and EMI/RFI in high frequency power conditioning system. The soft recovery behavior of the diodes offers the need as snubber in most applications. These devices are ideally suited for HF welding power converters and other applications where the switching losses are not significant portion of the total losses.

Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	V_{RRM}		1200	V
Continuous forward current	$I_F(AV)$	$T_c = 110^\circ\text{C}$	40	A
Single pulse forward current	I_{FSM}	$T_c = 25^\circ\text{C}$	400	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	60	
Operating junction	T_j		175	$^\circ\text{C}$
Storage temperatures	T_{stg}		-55 to +175	$^\circ\text{C}$

Electrical characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	V_{BR} , V_R	$I_R=100\mu A$	1200			V
Forward voltage (Per Diode)	V_F	$I_F=40A$		2.00	2.60	
		$I_F=40A, T_J=125^\circ C$		1.80	2.50	
Reverse leakage current(Per Diode)	I_R	$V_R=V_{RRM}$			20	μA
		$T_J=150^\circ C, V_R=1200V$			200	
Reverse recovery time(Per Diode)	t_{rr}	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$		55	75	ns
		$I_F=1A, V_R=30V, di/dt=200A/\mu s$		40	50	
Reverse recovery time	t_{rr}	$I_F=40A, di_F/dt=-200A/\mu s,$ $V_R=400V, T_C=25^\circ C$		127		ns
Reverse recovery charge	Q_{rr}			548		nC
Maximum reverse recovery current	I_{RRM}			23		A

Thermal characteristics

Paramter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	0.75	$^\circ C/W$

Electrical performance (typical)

FIG.1 Forward Characteristic (typical)

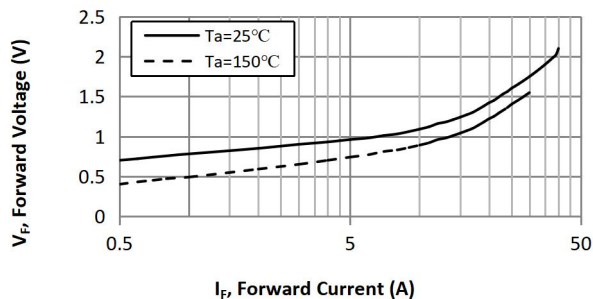


FIG.2 Reverse Characteristic (typ.)

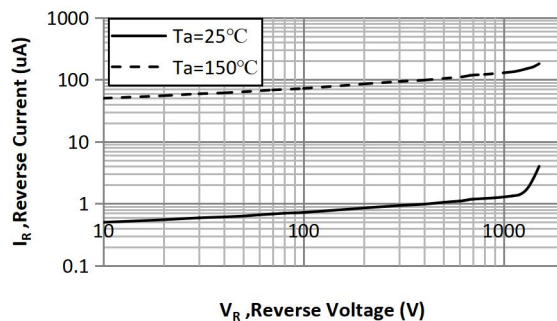


FIG.3 Reverse Recover Time vs. Current Rate of Change

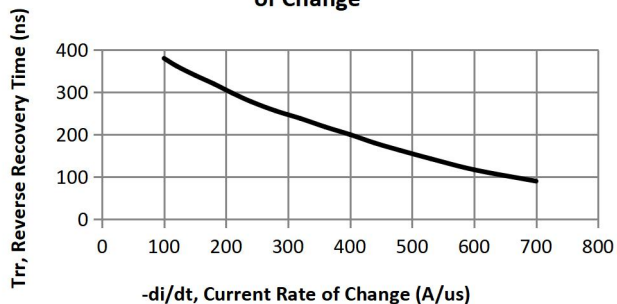


FIG.4 Reverse Recover Charge vs. Current Rate of Change

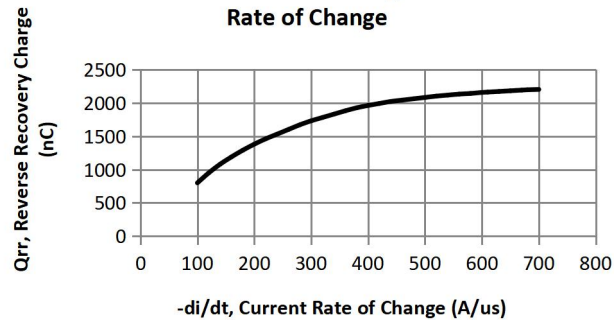


FIG.5 Reverse Recover Current vs. Current Rate of Change

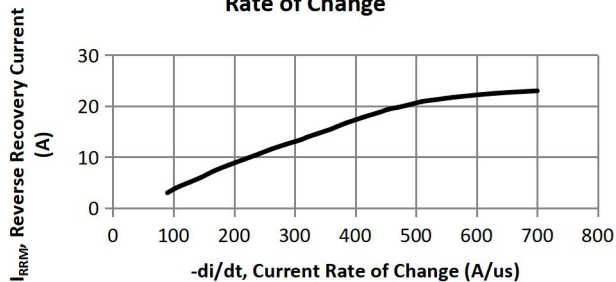


FIG.6 Average Forward Current vs. Case Temperature

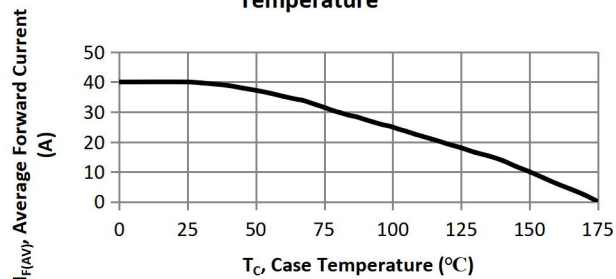
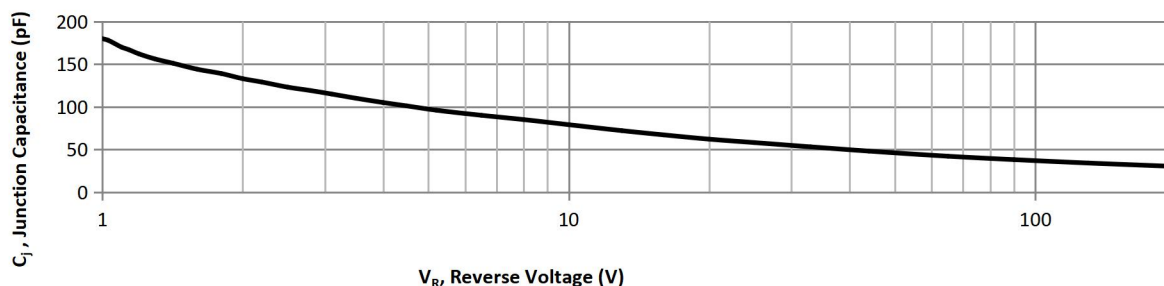
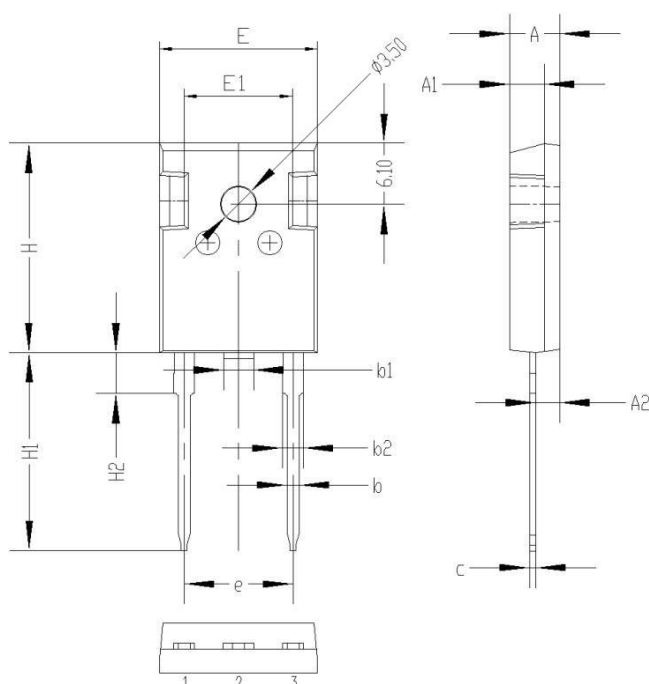


FIG.7 Junction Capacitance vs. Reverse Voltage



Package Information

TO-247-2L PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.80	5.20
A1	3.30	3.70
A2	2.10	2.50
b	1.00	1.40
b1	2.80	3.20
b2	1.90	2.30
c	0.40	0.80
e	10.7	11.1
E	15.6	16.0
E1	10.6	11.0
H	20.8	21.2
H1	19.4	20.4
H2	3.90	4.30
G	5.90	6.30
ΦP	3.30	3.70

Notice

Thunder Microelectronics Incorporated Limited reserves the right to make changes without further notice to any products or specifications herein. When use the product, be sure to obtain the latest specification.

Thunder Microelectronics Incorporated Limited does not assume any liability arising out of the application or any product described herein. When using Thunder Microelectronics Incorporated Limited products in your equipment, you are requested to take adequate safety measures to prevent the equipment from causing a physical injury ,fire or other problem if any of the products become faulty.

-Headquarters

WuXi Thunder Microelectronics Incorporated Limited

Building E1-9F, No.200 LingHu Road, XinWu district,WuXi,China

214135 Tel: +86-510-85160109

Fax: +86-510-85160109