

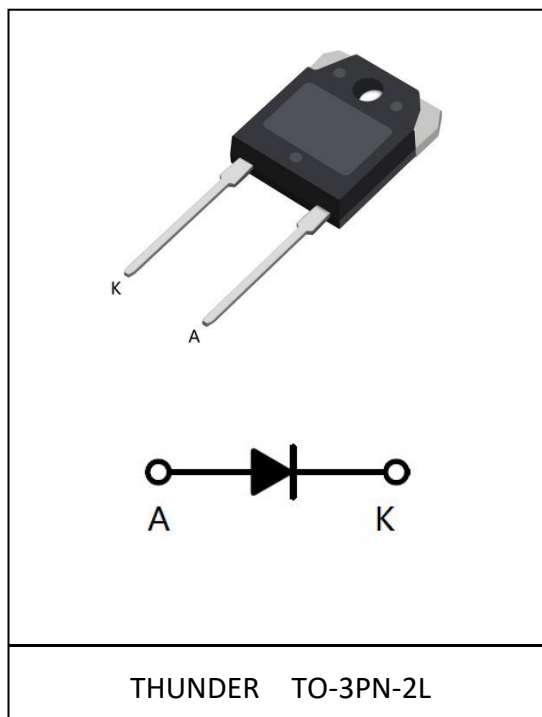
FRED

Ultrafast Soft Recovery Diode, 30A

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	600 V
$I_{F(AV)}$	30A
t_{rr}	22 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	Unit
Repetitive peak reverse voltage	V_{RRM}		600	V
Continuous forward current	$I_{F(AV)}$	$T_c = 110^\circ\text{C}$	30	A
Single pulse forward current	I_{FSM}	$T_c = 25^\circ\text{C}$	300	
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.	Unit
Breakdown voltage Blocking voltage	V_{BR} , V_R	$I_R=100\mu A$	600			V
Forward voltage (Per Diode)	V_F	$I_F=30A$		2.0	2.8	
		$I_F=30A$, $T_j=125^\circ C$		1.6	2.4	
Reverse leakage current(Per Diode)	I_R	$V_R=V_{RRM}$			20	μA
		$T_j=150^\circ C$, $V_R=600V$			200	
Reverse recovery time(Per Diode)	t_{rr}	$I_F=0.5A$, $I_R=1A$, $I_{RR}=0.25A$		30	40	ns
		$I_F=1A$, $V_R=30V$, $di/dt=200A/\mu s$		22	30	
		$I_F=30A$, $V_R=200V$, $di/dt=200A/\mu s$		53	75	
Reverse recovery charge	Q_{rr}	$I_F=30A$, $V_R=200V$, $di/dt=200A/\mu s$		0.12	0.2	μC

Thermal characteristics

Paramter	Symbol	Typ.	Unit
Junction-to-Case	$R_{\theta JC}$	0.8	$^\circ C/W$

Electrical performance (typical)

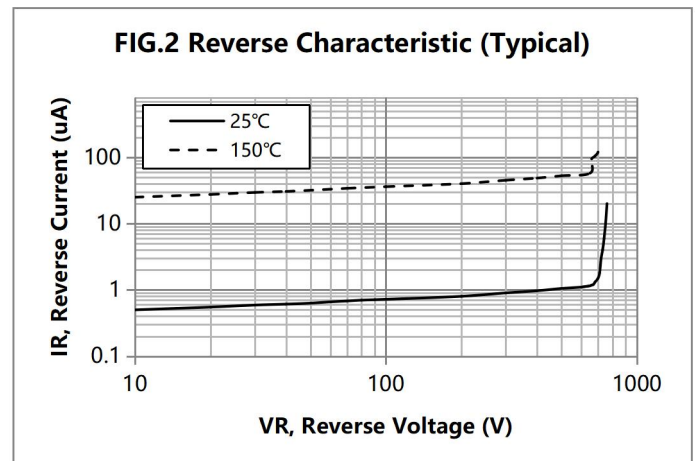
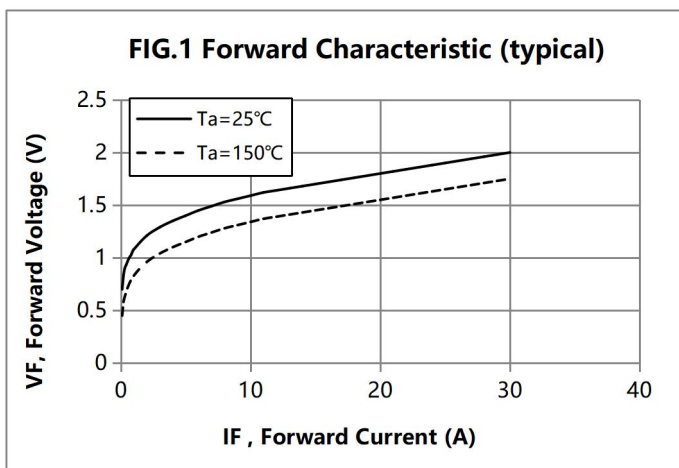


FIG.3 Reverse Recover Time vs. Current Rate of Change

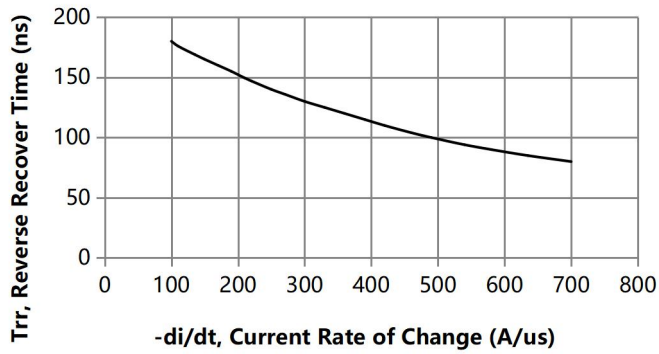


FIG.4 Reverse Recover Charge vs. Current Rate of Change

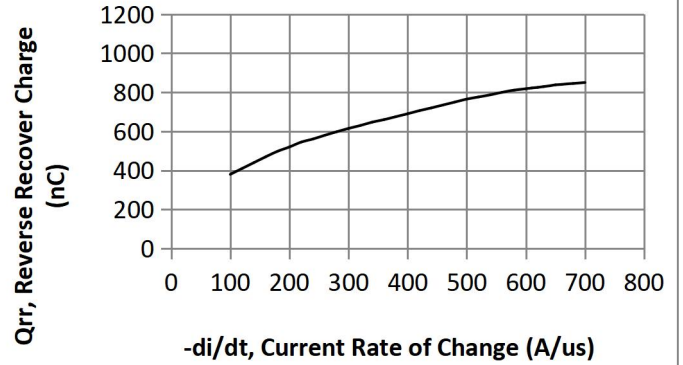


FIG.5 Reverse Recover Current vs. Current Rate of Change

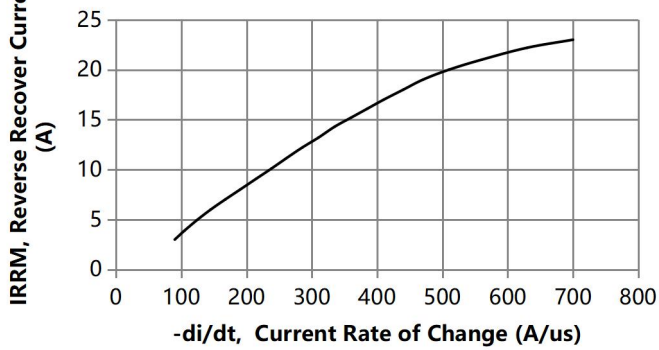


FIG.6 Average Forward Current vs. Case Temperature

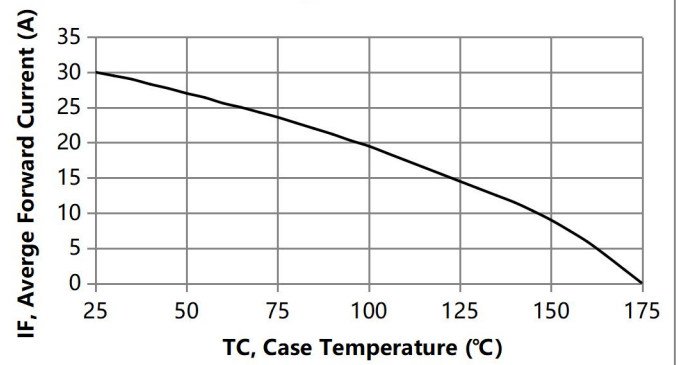
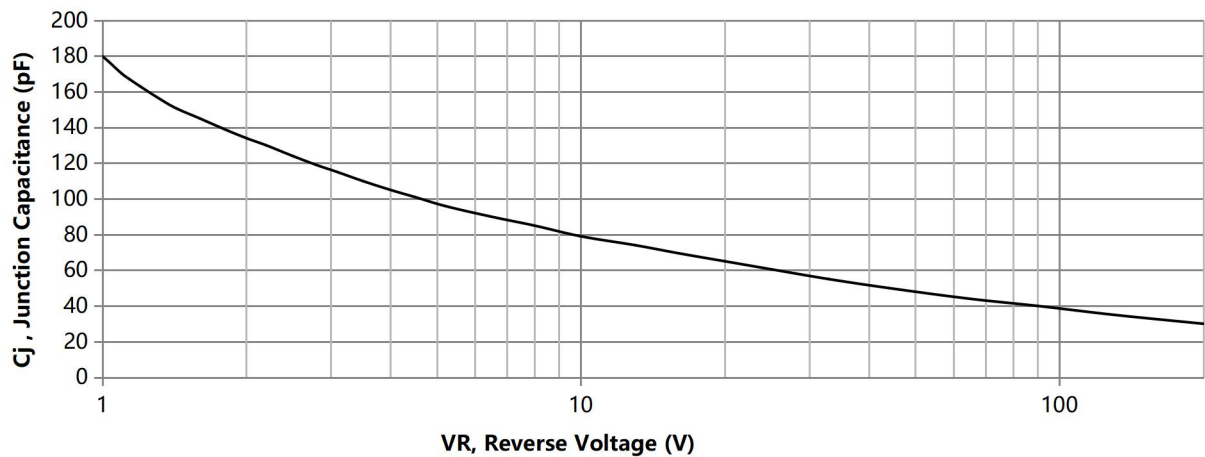


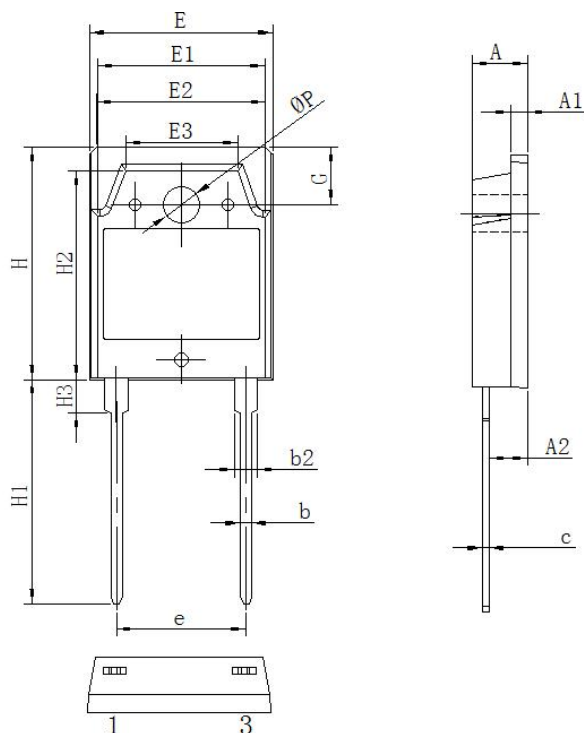
FIG.7 Junction Capacitance vs. Reverse Voltage



Package Information

TO-3PN-2L PACKAGE

基本尺寸



Symbol	单位 mm		
	Min	Nom	Max
A	4.60	4.80	5.00
A1	1.3	1.5	1.7
A2	2.20	2.40	2.60
b	0.80	1.0	1.20
b2	1.90	2.10	2.30
c	0.50	0.60	0.70
e	10.7	10.9	11.1
E	15.2	15.6	16.0
E1	13.2	13.4	13.6
E2	13.1	13.3	13.5
E3	9.1	9.3	9.5
H	19.8	20.0	20.2
H1	19.4	19.8	20.2
H2	18.5	18.7	18.9
H3	2.9	3.1	3.3
G	4.8	5.0	5.2
ΦP	3.00	3.20	3.40

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-Headquarters

WuXi Thunder Microelectronics Incorporated Limited

Building E1-9, No.200 LingHu Road, XinWu district,WuXi,China 214135

Tel:+86-510-85160109

Fax:+86-510-85160109