

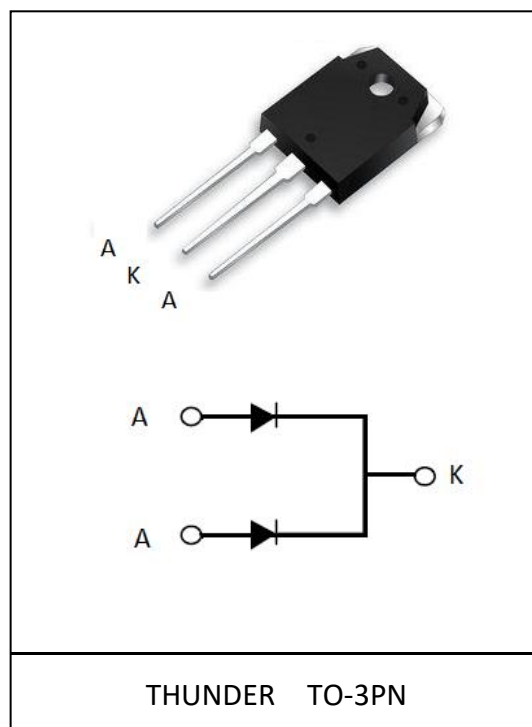
FRED

Ultrafast Soft Recovery Diode, 60A

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
$I_{F(AV)}$	2*30A
t_{rr}	28 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}		600	V
Continuous forward current	$I_{F(AV)}$	$T_c = 110^\circ\text{C}$	60	A
Single pulse forward current	I_{FSM}	$T_c = 25^\circ\text{C}$	600	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	110	
Operating junction	T_j		175	$^\circ\text{C}$
Storage temperatures	T_{stg}		-55 to +175	$^\circ\text{C}$

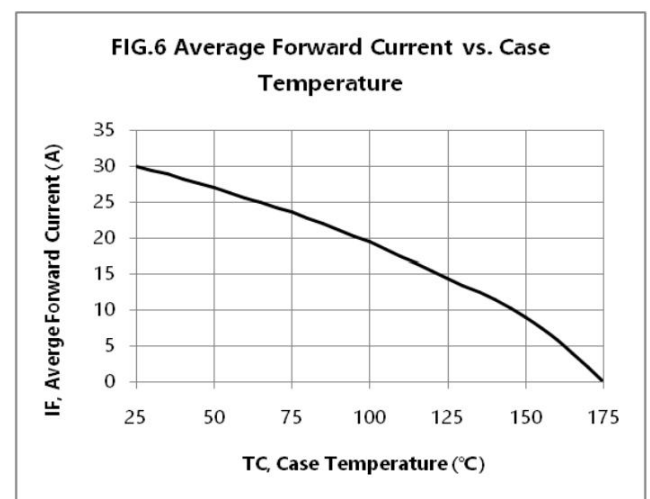
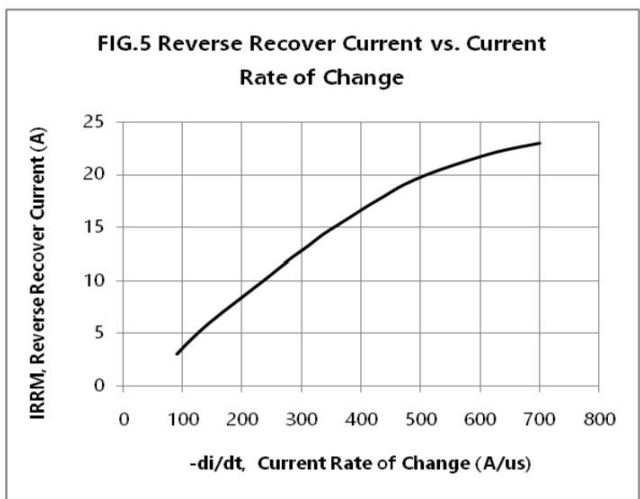
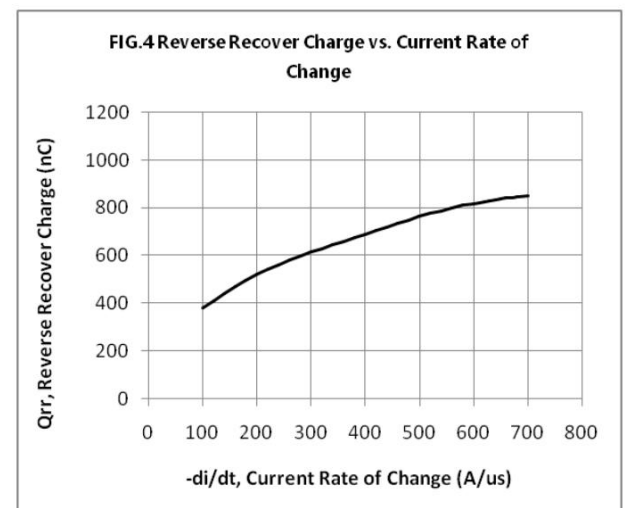
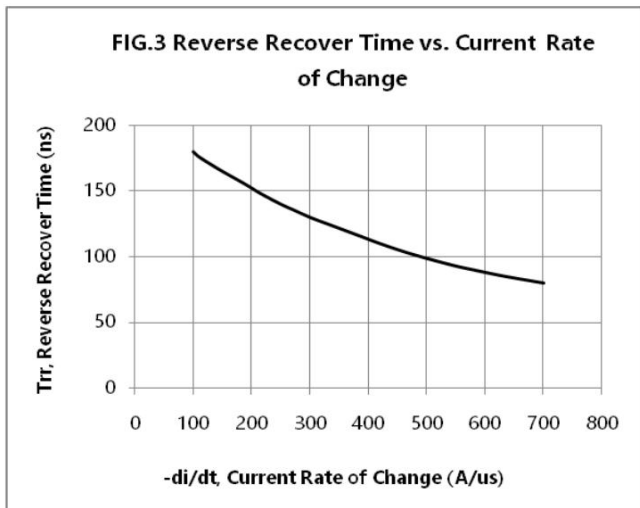
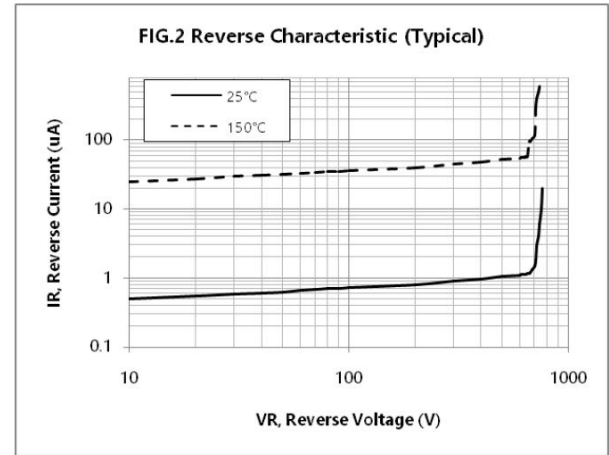
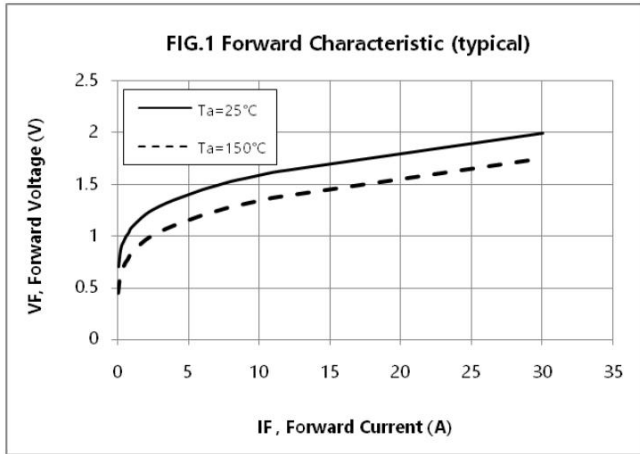
Electrical characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	V_{BR} , V_R	$I_R=100\mu A$	600			V
Forward voltage (per die)	V_F	$I_F=30A$		1.30	1.60	
		$I_F=30A, T_J=125^\circ C$		1.05	1.40	
Reverse leakage current (per die)	I_R	$V_R=V_{RRM}$			20	μA
		$T_J=150^\circ C, V_R=600V$			200	
Reverse recovery time	t_{rr}	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$		35	50	ns
		$I_F=1A, V_R=30V, di/dt=200A/\mu s$		28	40	
Reverse recovery time	t_{rr}	$I_F=30A, V_R=300V,$ $di_F/dt=-200A/\mu s, T_J=25^\circ C$		34		ns
Maximum Reverse Recovery Current	I_{RM}			3		A
Reverse Recovery Charge	Q_{rr}			118		nC
Reverse recovery time	t_{rr}	$I_F=30A, V_R=300V,$ $di_F/dt=-200A/\mu s, T_J=125^\circ C$		108		ns
Maximum Reverse Recovery Current	I_{RM}			7		A
Reverse Recovery Charge	Q_{rr}			465		nC

Thermal characteristics

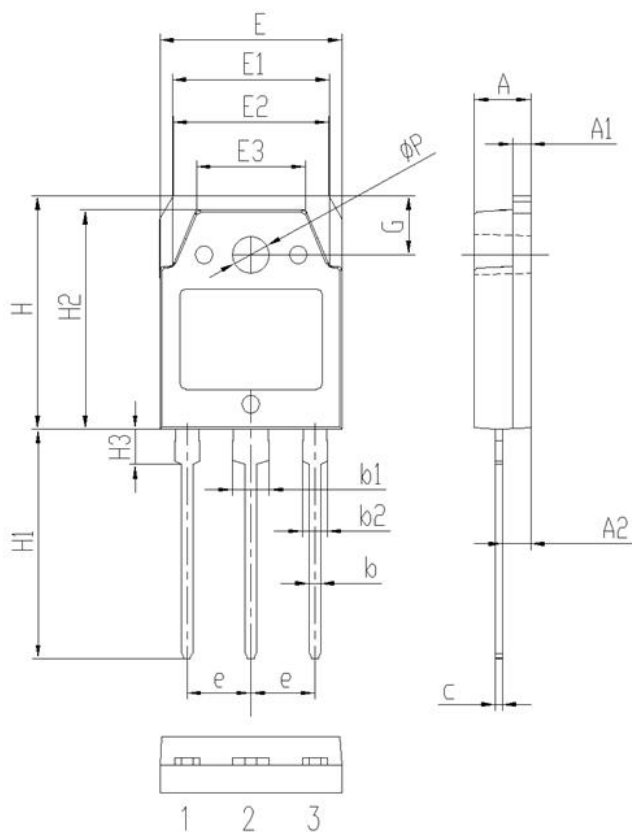
Paramter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	0.75	$^\circ C/W$

Electrical performance (typical)



Package Information

TO-3PN PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.60	5.00
A1	1.30	1.70
A2	2.20	2.60
b	0.80	1.20
b1	2.90	3.30
b2	1.90	2.30
c	0.40	0.80
e	5.25	5.65
E	15.3	15.7
E1	13.2	13.6
E2	13.1	13.5
E3	9.10	9.50
H	19.7	20.1
H1	19.1	20.1
H2	18.3	18.7
H3	2.80	3.20
G	4.80	5.20
ΦP	3.00	3.40

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-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