

FRED

Ultrafast Soft Recovery Diode, 600V, 30A

Description

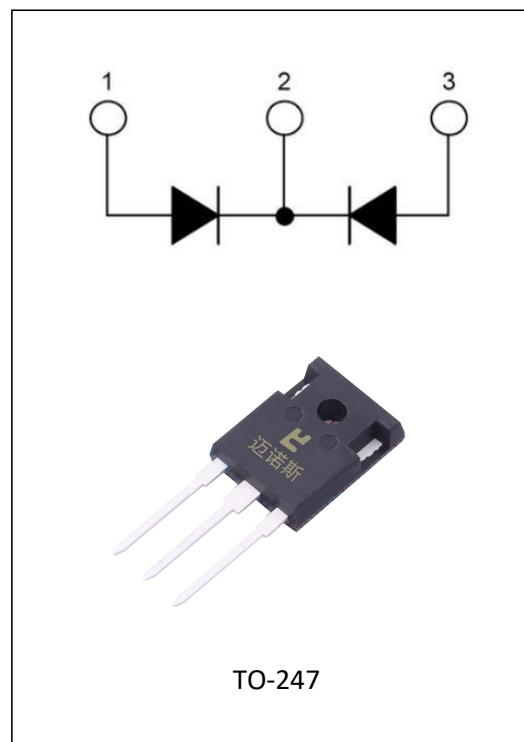
These diodes are optimized to less losses and EMI/RFI in high frequency power conditioning system. The soft recovery character of the diodes offers buffer in most applications. These devices are suited for power converters and other applications where the switching losses are not significant portion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

General Features

- ① Ultrafast Recovery
- ② 175°C operating junction temperature
- ③ High frequency operation
- ④ Low I_R value
- ⑤ High surge capacity
- ⑥ Epitaxial chip construction

Application

- ① Switched mode power supply
- ② Inverter welding
- ③ UPS



Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	V_{RRM}		600	V
Continuous forward current	$I_{F(AV)}$	$T_A=110^{\circ}\text{C}$	30	A
Single pulse forward current	I_{FSM}	$T_A=25^{\circ}\text{C}$	240	A
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	60	A
Operating junction	T_j		175	$^{\circ}\text{C}$
Storage temperatures	T_{stg}		-55 to +175	$^{\circ}\text{C}$

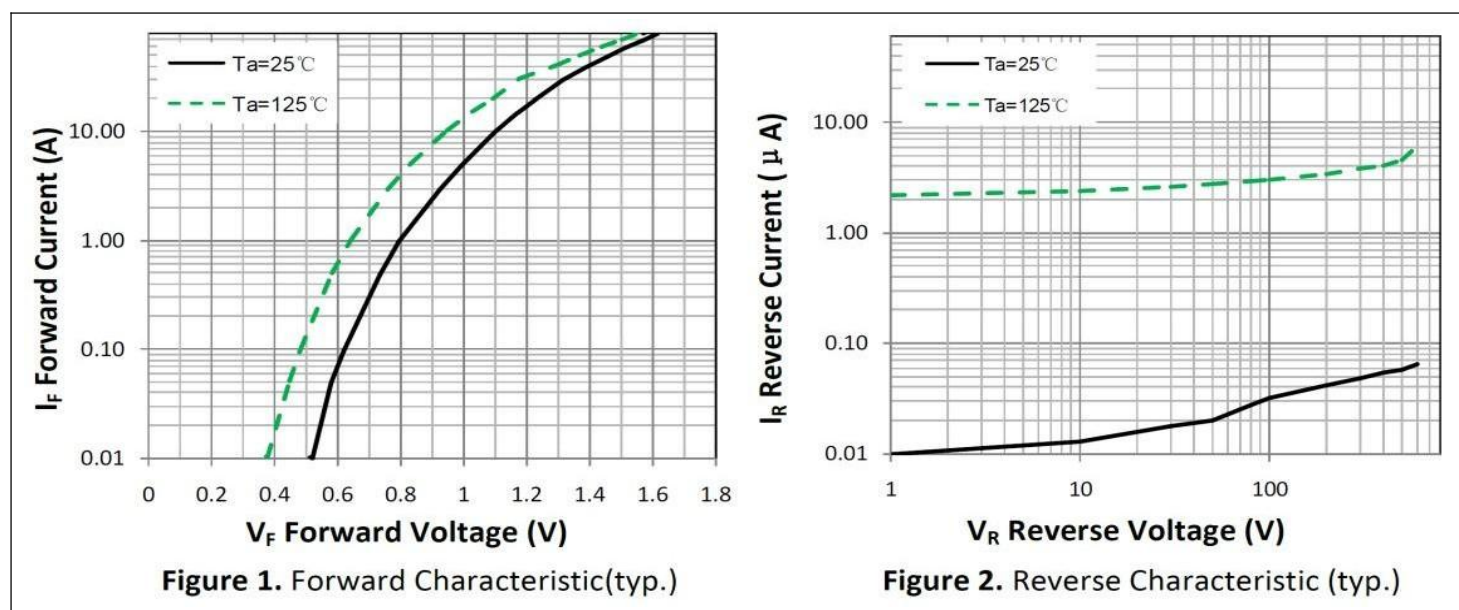
Electrical characteristics (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Breakdown voltage	V_{BR}	$I_R=100\mu A$	600			V
Blocking voltage	V_R					
Forward voltage	V_F	$I_F=30 A$		1.30	1.60	V
		$I_F=30 A, T_j=125^\circ C$		1.20	1.50	V
Reverse leakage current	I_R	$V_R=V_{RRM}$			30	μA
		$T_j=150^\circ C, V_R=600V$			300	μA
Reverse recovery time	t_{rr}	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$			55	ns
		$I_F=1A, V_R=30V, di/dt=200A/\mu s$		29	40	ns

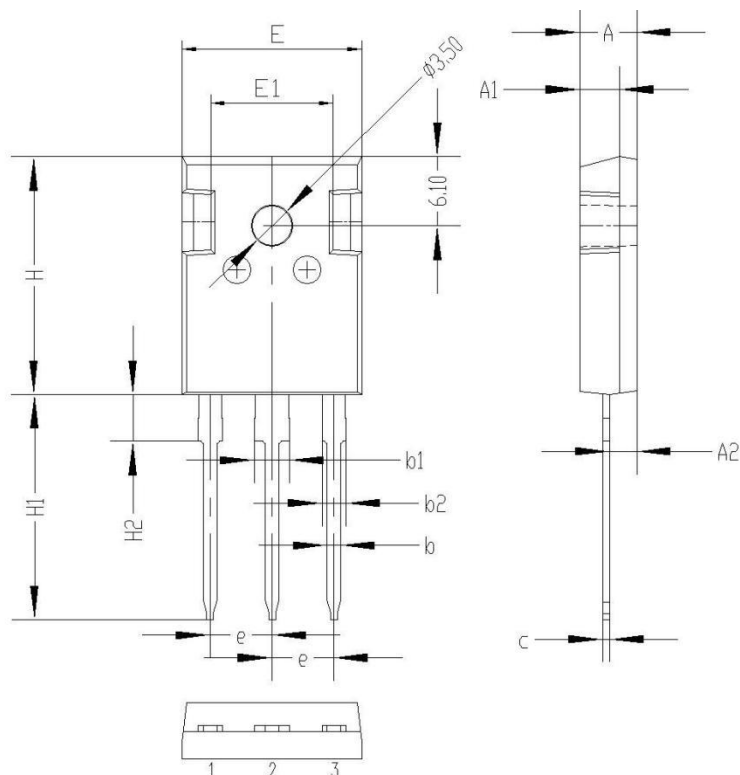
Thermal characteristics

Parameter	Symbol	Typ.	Max.	Units
Junction-to-Case	R_{thJC}	-	1.0	$^\circ C/W$

Characteristics Curves



Package Description



Symbol	Values (mm)		
	MIN	TYP	MAX
A	4.8	5.00	5.20
A1	3.3	3.5	3.7
A2	2.20	2.40	2.60
b	1.00	1.2	1.40
b1	2.90	3.10	3.30
b2	1.80	2.00	2.20
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	15.2	15.7	16.2
H	20.8	21	21.2
H1	19.5	20.0	20.5
H2	3.9	4.1	4.3
G	5.9	6.1	6.3
ϕP	3.30	3.50	3.70

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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