

**FRED**  
**Ultrafast Soft Recovery Diode, 650V,30A**

**Description**

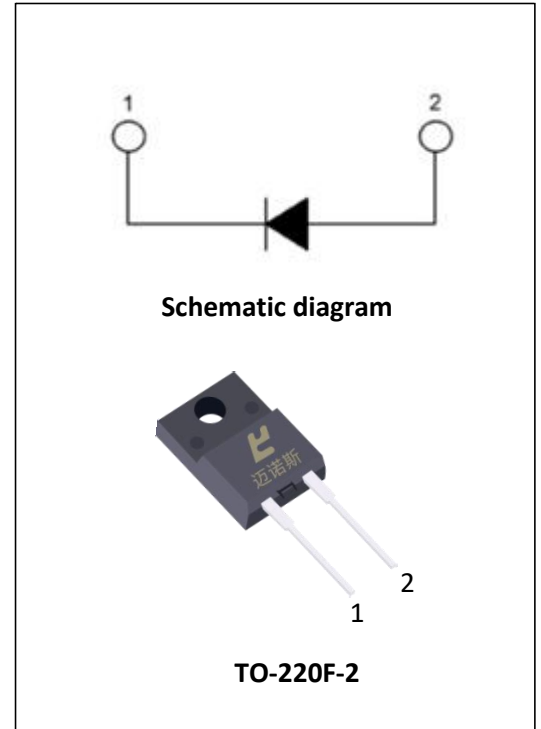
These diodes are optimized to less losses and EMI/RFI in high frequency power conditioning system. The soft recovery character of the diodes offers buffer in most applications. These devices are suited for power converters and other applications where the switching losses are not significant portion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

**General Features**

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

**Applications**

- ① Switched mode power supply
- ② Free wheeling diode
- ③ UPS



**Absolute Maximum Ratings**

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	$V_{RRM}$		650	V
Continuous forward current	$I_{F(AV)}$	$T_c=110^{\circ}C$	30	A
Single pulse forward current	$I_{FSM}$	$T_c=25^{\circ}C$	300	
Maximum repetitive forward current	$I_{FRM}$	Square wave, 20kHz	70	
Operating junction	$T_j$		175	$^{\circ}C$
Storage temperatures	$T_{stg}$		-55 to +175	$^{\circ}C$

**Thermal characteristics**

Parameter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	4.2	$^{\circ}C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	$V_{BR}, V_R$	$I_R=100\mu A$	650	--	--	V
Forward voltage (Per Diode)	$V_F$	$I_F=30A$	--	1.35	1.65	
		$I_F=30A, T_j=125^\circ C$	--	1.25	1.50	
Reverse leakage current(Per Diode)	$I_R$	$V_R= V_{RRM}$	--	--	30	$\mu A$
		$T_j=150^\circ C, V_R=650V$	--	--	300	
Reverse recovery time(Per Diode)	$t_{rr}$	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$	--	--	55	ns
		$I_F=1A, V_R=30V, di/dt=200A/us$	--	28	40	

Characteristics Curves

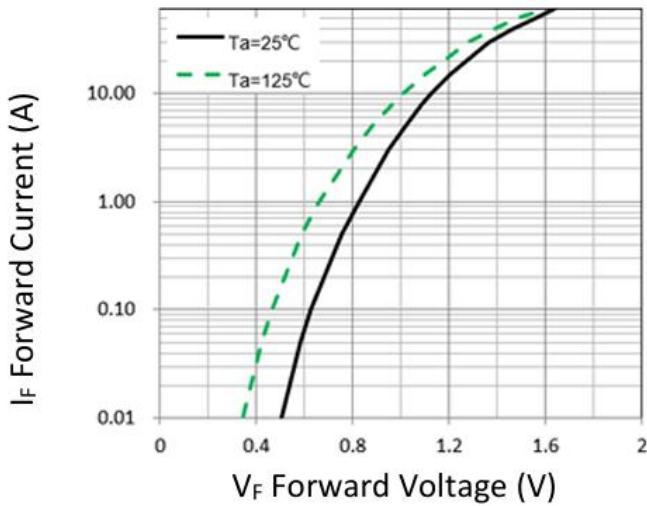


Figure 1. Forward Characteristic(typ.)

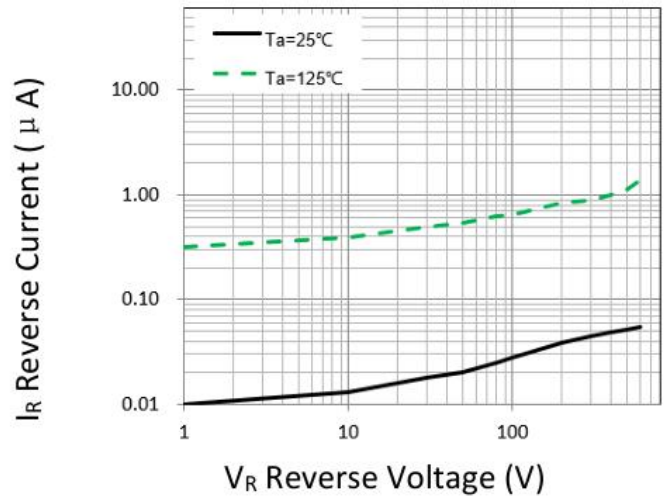
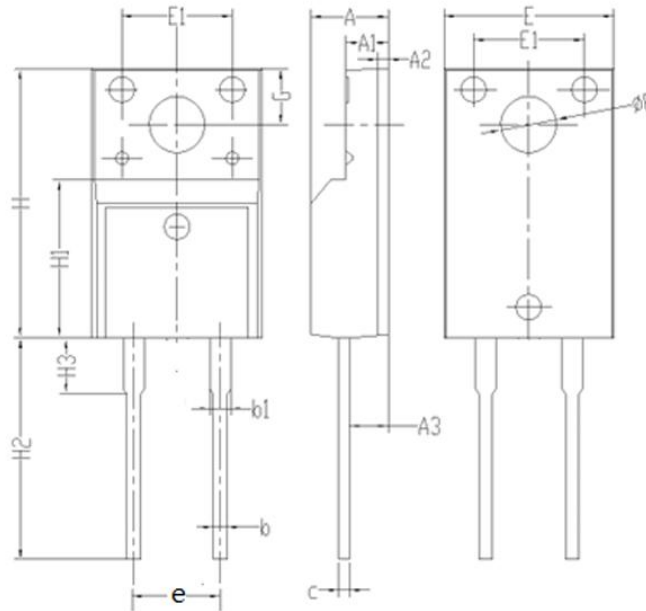


Figure 2. Reverse Characteristic (typ.)

Package Information



Symbol	Values(mm)	
	MIN	MAX
A	4.35	4.85
A1	2.30	2.70
A2	0.40	0.80
A3	2.10	2.50
b	0.60	1.00
b1	1.00	1.40
c	0.30	0.70
e	4.60	5.40
E	9.90	10.30
E1	6.80	7.20
H	15.6	16.0
H1	8.80	9.20
H2	12.5	13.9
H3	2.90	3.30
G	3.10	3.50
φp	3.10	3.50

TO-220F-2 Package



**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.

**CONTACT:**

**深圳市迈诺斯科技有限公司 (总部)**

地址：深圳市福田区华富街道田面社区深南中路4026号田面城市大厦16D

邮编：518025

电话：0755-83273777