

FRD Ultrafast Soft Recovery Diode, 80A

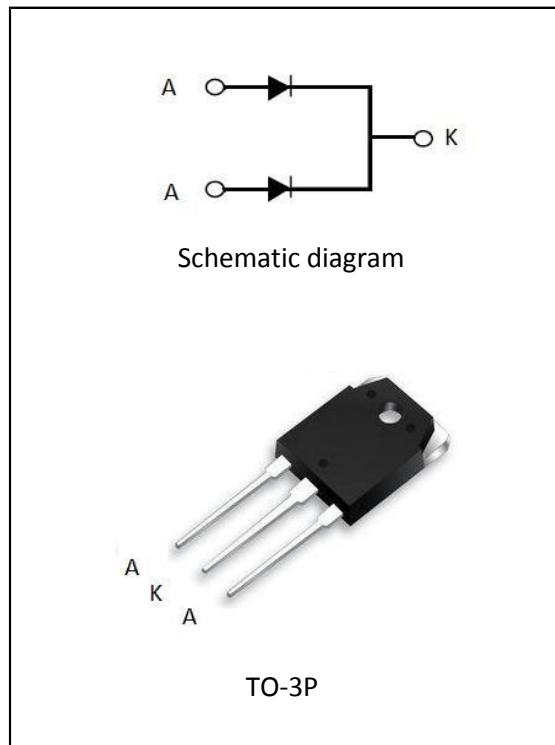
Description/Applications

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.

Features

- ① Ultrafast Recovery
- ② 175°C operating junction temperature
- ③ High frequency operation
- ④ Low power loss, less RFI and EMI
- ⑤ Low IR value
- ⑥ High surge capacity
- ⑦ Epitaxial chip construction



Product Summary

V_R	400 V
$I_{F(AV)}$	2*40A
t_{rr}	26ns

Absolute Maximum Ratings				
Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	V_{RRM}		400	V
Continuous forward current	$I_{F(AV)}$	$T_c = 110^\circ\text{C}$	80	A
Single pulse forward current	I_{FSM}	$T_c = 25^\circ\text{C}$	600	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	160	
Operating junction	T_j		175	$^\circ\text{C}$
Storage temperatures	T_{stg}		-55 to +175	$^\circ\text{C}$

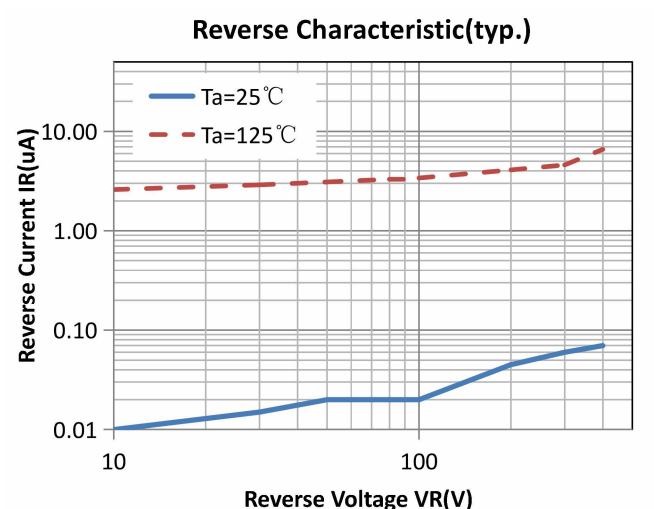
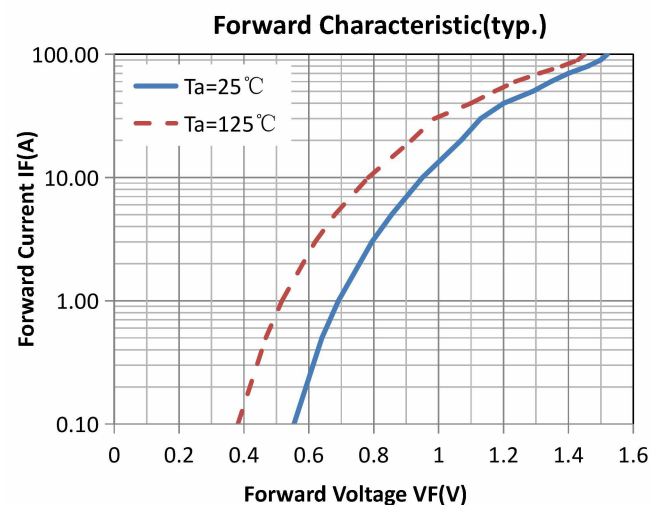
Electrical characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ.	Max.	Units
Breakdown voltage Blocking voltage	V_{BR} , V_R	$I_R=100\mu A$	400			V
Forward voltage (Per Diode)	V_F	$I_F=40A$		1.20	1.60	
		$I_F=40A$, $T_j=125^\circ C$		1.10	1.40	
Reverse leakage current(Per Diode)	I_R	$V_R=V_{RRM}$			30	μA
		$T_j=150^\circ C$, $V_R=400V$			300	
Reverse recovery time(Per Diode)	t_{rr}	$I_F=0.5A$, $I_R=1A$, $I_{RR}=0.25A$		40	55	ns
		$I_F=1A$, $V_R=30V$, $di/dt=200A/\mu s$		26	40	

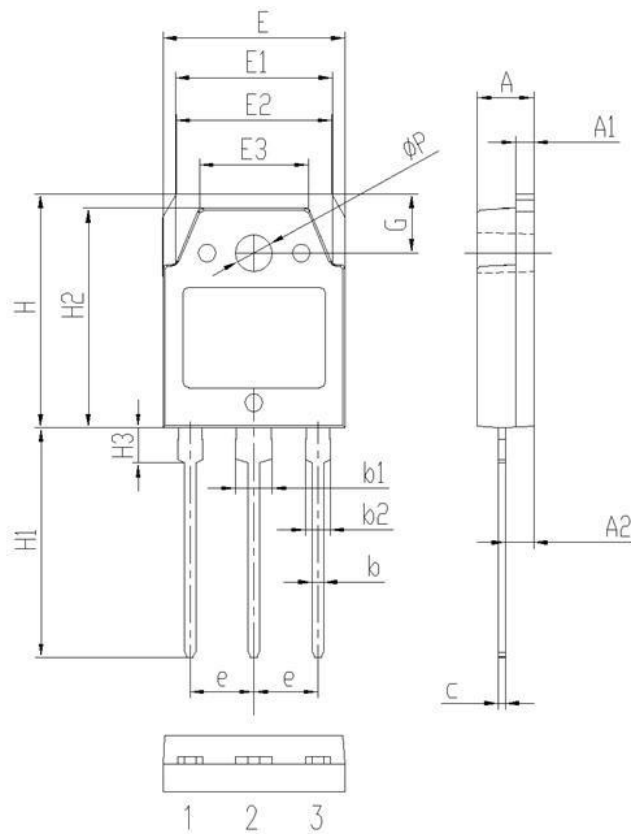
Thermal characteristics

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

Electrical performance (typic)



Package Description



Symbol	Dimensions(millimeter)	
	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

TO-3PB PACKAGE



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F80UP40DN

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22B-22C

邮编：518025

电话：0755-83273777