

## FRED Ultrafast Soft Recovery Diode, 20A/600V

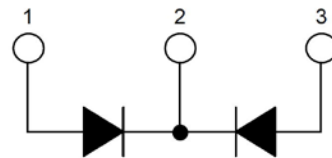
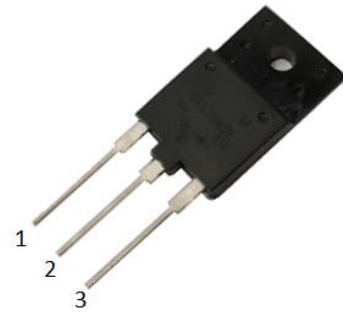
### Description

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.

### Features

- Ultrafast Recovery
- 175°C operating junction temperature
- High frequency operation
- Low IR value
- High surge capacity
- Epitaxial chip construction

Product Summary	
$V_R$	600 V
$I_{F(AV)}$	2*10A
$t_{rr}$	29ns



### Application

- Inverter welding
- Switched mode power supply
- UPS

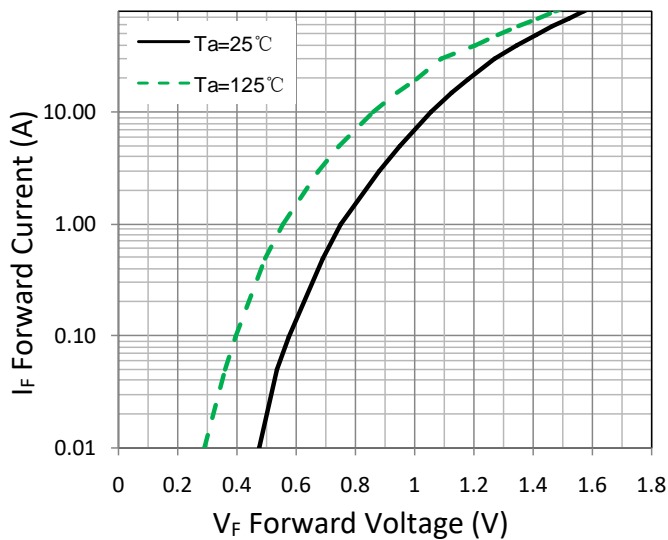
Absolute Maximum Ratings				
Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	$V_{RRM}$		600	V
Continuous forward current	$I_{F(AV)}$	$T_C = 110^\circ\text{C}$	20	A
Single pulse forward current	$I_{FSM}$	$T_C = 25^\circ\text{C}$	400	
Maximum repetitive forward current	$I_{FRM}$	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.	Units
Breakdown voltage Blocking voltage	$V_{BR}, V_R$	$I_R=100\mu A$	600			V
Forward voltage (Per Diode)	$V_F$	$I_F=10 A$		1.15	1.50	
		$I_F=10 A, T_j =125^\circ C$		0.90	1.30	
Reverse leakage current(Per Diode)	$I_R$	$V_R= 600V$			30	$\mu A$
		$T_j=150^\circ C, V_R=600V$			300	
Reverse recovery time(Per Diode)	$t_{rr}$	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$			45	ns
		$I_F=1A, V_R=30V, di/dt =200A/us$		29	40	

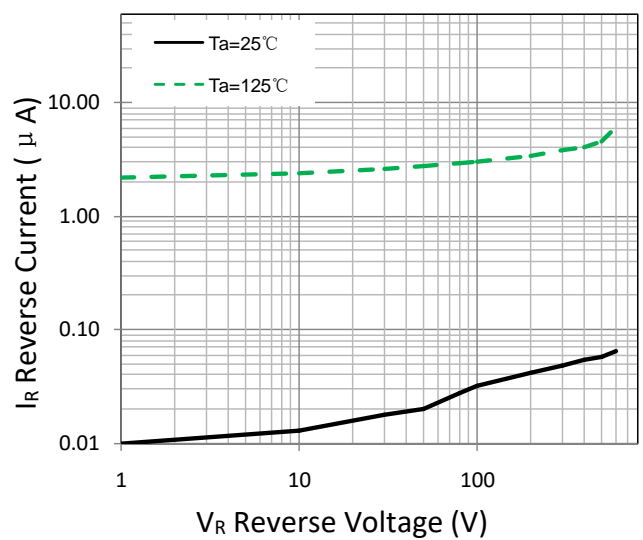
**Thermal characteristics**

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	1.00	$^\circ C/W$

**Typical Characteristics**

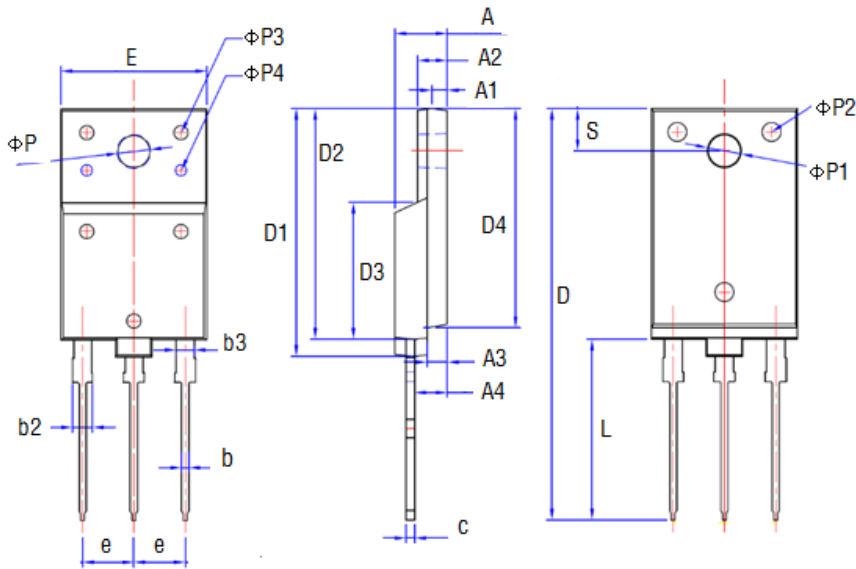


**Figure 1.** Forward Characteristic(typ.)



**Figure 2.** Reverse Characteristic (typ.)

Package Information (TO-3PF PACKAGE)



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	5.30	5.80
A1	1.50	1.80
A2	3.00	3.30
A3	2.00	2.30
A4	3.20	3.60
b	0.60	0.90
b2	2.00	2.20
b3	1.70	2.10
c	0.70	1.10
D	43.3	44.3
D1	25.8	26.8
D2	24.0	25.0
D3	14.03	15.03
D4	22.8	23.8
e	5.00	5.90
E	15.0	16.0
L	18.7	19.7
S	4.20	4.80
ΦP	3.20	3.60
ΦP1	3.40	3.80
ΦP2	1.90	2.10
ΦP3	1.40	1.60
ΦP4	1.10	1.30