

## FRED Ultrafast Soft Recovery Diode, 10A/600V

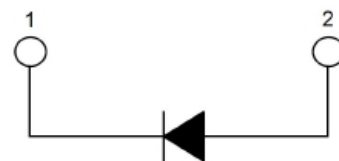
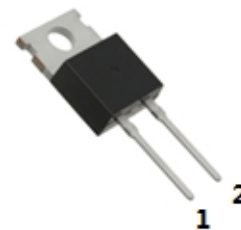
### Description

These diodes are optimized to low loss 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
$I_{F(AV)}$	10A
$t_{rr}$	22ns



### Application

- Freewheeling diode, snubber diode
- Rectifiers in switched mode power supply
- Uninterruptible power supplies(UPS)

### Absolute Maximum Ratings

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	$V_{RRM}$		600	V
Continuous forward current	$I_{F(AV)}$	$T_C = 110^\circ\text{C}$	10	A
Single pulse forward current	$I_{FSM}$	$T_C = 25^\circ\text{C}$	100	
Maximum repetitive forward current	$I_{FRM}$	Square wave, 20kHz	20	
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)	$V_F$	$I_F=10 A$		1.30	1.70	
		$I_F=10 A, T_j =125^\circ C$		1.20	1.60	
Reverse leakage current(Per Diode)	$I_R$	$V_R= 600V$			20	$\mu A$
		$T_j=150^\circ C, V_R=600V$			200	
Reverse recovery time(Per Diode)	$t_{rr}$	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$			35	ns
		$I_F=1A, V_R=30V, di/dt =200A/us$		22	30	

### Thermal characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	3.0	$^\circ C/W$

### Typical Characteristics

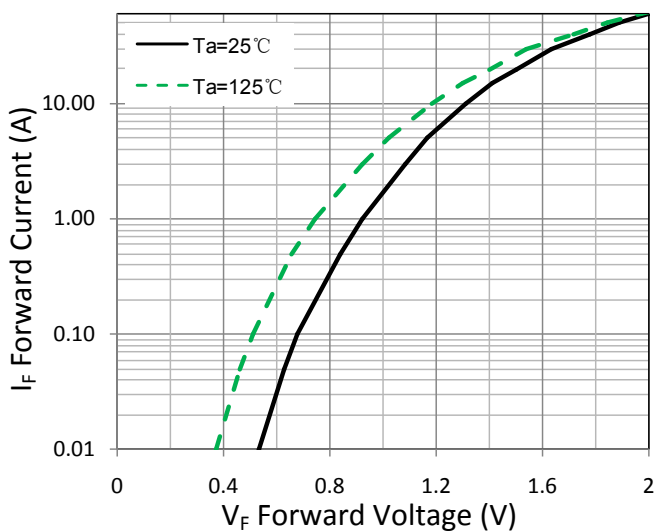


Figure 1. Forward Characteristic(typ.)

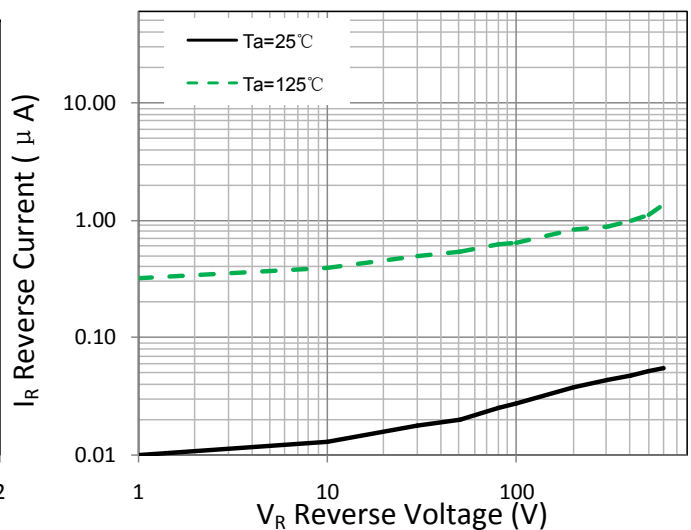
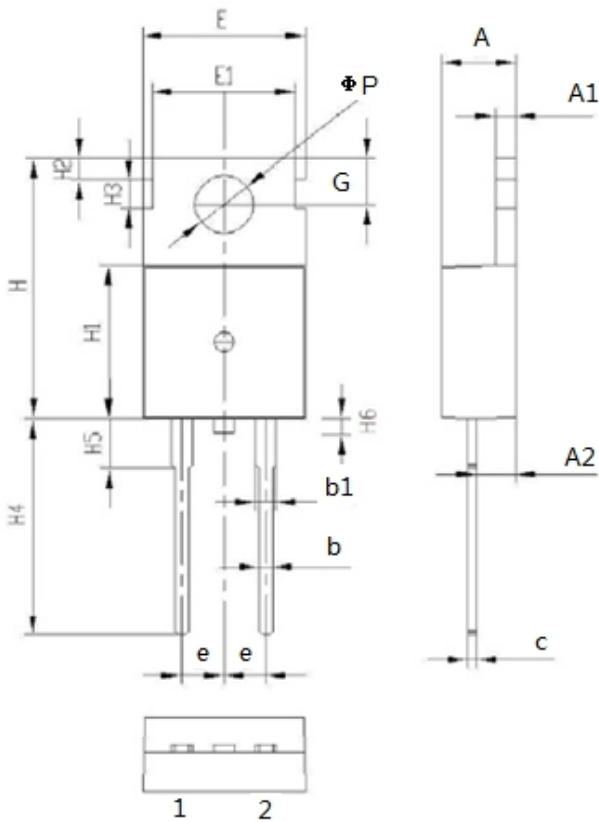


Figure 2. Reverse Characteristic (typ.)

## Package Information (TO-220C-2 PACKAGE)



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.10	1.30
b1	1.90	2.15
H6	0.50	0.75
c	20.70	21.30
e	16.25	16.85
E	15.60	16.00
E1	13.06	13.46
H1	4.80	5.20
H2	1.80	2.50
H3	4.40	4.60
H4	19.62	20.22
H5	4.00	4.30
G	3.40	3.80
ΦP	7.00	7.30