

FRED**Ultrafast Soft Recovery Diode, 650V, 12A****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
- Very Low forward voltage
- Epitaxial chip construction

Product Summary	
V_R	650 V
$I_{F(AV)}$	12 A
t_{rr}	30 ns

**Applications:**

- Switched mode power supply
- Inverter welding
- 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 _A =110°C	12			A
Single pulse forward current	I _{FSM}	T _A =25°C	100			A
Maximum repetitive forward current	I _{FRM}	Square wave, 20kHz	20			A
Operating junction	T _j		175			°C
Storage temperatures	T _{stg}		-55 to +175			°C
Electrical characteristics (Ta=25 °C unless otherwise specified)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Breakdown voltage	V _{BR}	I _R =100μA	650			V
Blocking voltage	V _R					
Forward voltage	V _F	I _F =12 A		1.35	1.60	V
		I _F =12 A, T _j =125°C		1.25	1.50	V
Reverse leakage current	I _R	V _R = V _{RRM}			20	μA
		T _j =150°C, V _R =650V			200	μA
Reverse recovery time	trr	I _F =0.5A, I _R =1A, I _{RR} =0.25A			35	ns
		I _F =1A,V _R =30V, di/dt =200A/us		23	30	ns
Thermal characteristics						
Parameter	Symbol	Typ	MAX			Units
Junction-to-Case	R _{thJC}	-	2.8			°C/W

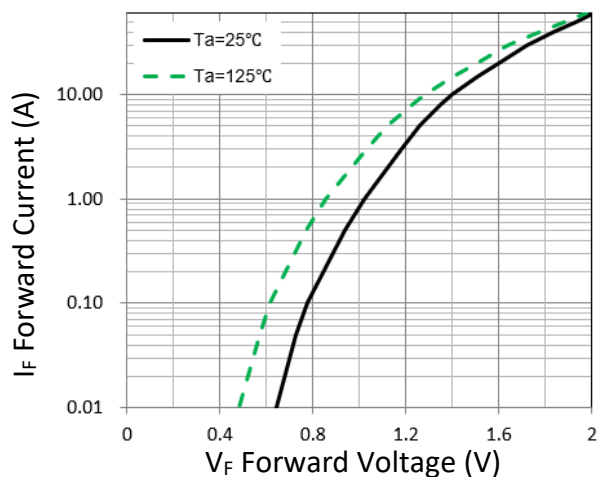


Figure 1. Forward Characteristic(typ.)

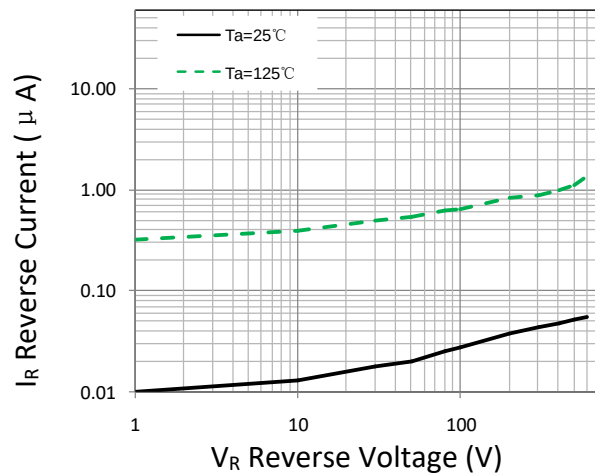
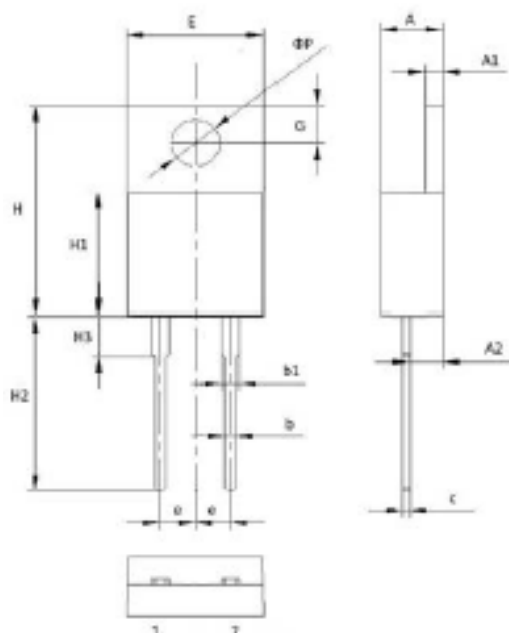


Figure 2. Reverse Characteristic (typ.)

Package Information

TO-220C-2 PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.30	4.70
A1	1.17	1.37
A2	2.20	2.60
b	0.60	1.00
b1	1.17	1.37
c	0.30	0.70
e	2.34	2.74
E	9.70	10.10
H	15.50	15.90
H1	9.00	9.40
H2	12.58	13.58
H3	2.80	3.20
G	2.60	3.00
ΦP	3.40	3.80