

FRED

Ultrafast Soft Recovery Diode, 100A/1200V

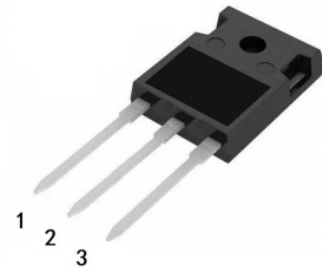
Description

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	1200 V
$I_{F(AV)}$	100A
t_{rr}	46ns



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}		1200	V
Continuous forward current	$I_{F(AV)}$	$T_C = 110^\circ\text{C}$	100	A
Single pulse forward current	I_{FSM}	$T_C = 25^\circ\text{C}$	680	
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	240	
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	$I_R=100\mu A$	1200			V
Forward voltage (Per Diode)	V_F	$I_F=100 A$		2.00	2.70	
		$I_F=100A, T_j =125^\circ C$		1.80	2.50	
Reverse leakage current(Per Diode)	I_R	$V_R= 1200V$			80	μA
		$T_j=150^\circ C, V_R=1200V$			800	
Reverse recovery time(Per Diode)	t_{rr}	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$			150	ns
		$I_F=1A, V_R=30V, di/dt =200A/us$		46	65	

Thermal characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	—	0.70	$^\circ C/W$

Typical Characteristics

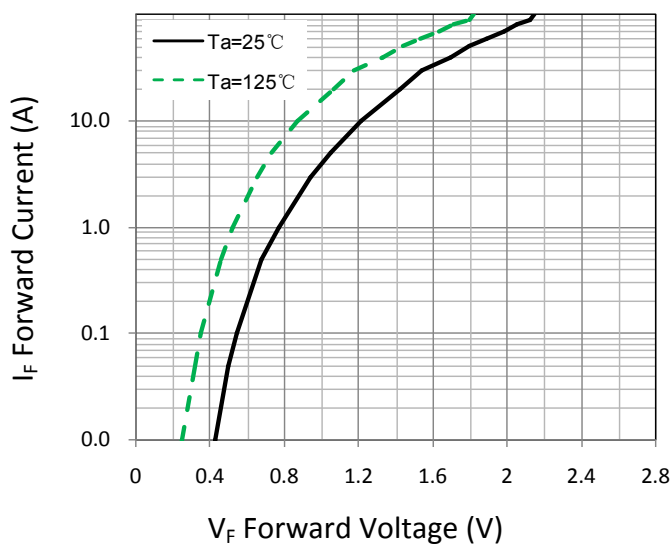


Figure 1. Forward Characteristic(typ.)

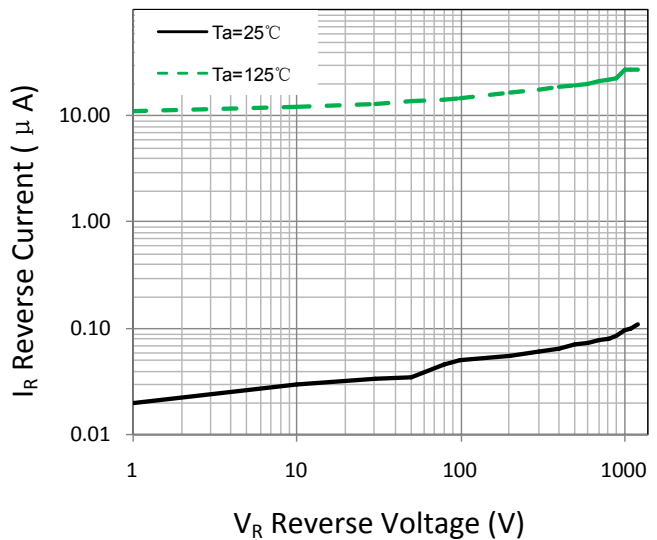
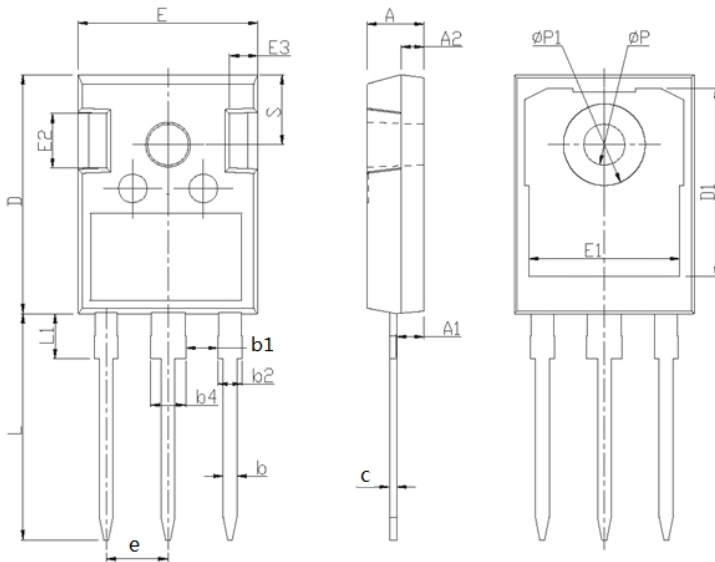


Figure 2. Reverse Characteristic (typ.)

Package Information (TO-247 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	2.55	2.85
b2	1.90	2.15
b4	3.00	3.20
c	0.50	0.75
D	20.70	21.30
D1	16.25	16.85
e	5.25	5.65
E	15.60	16.00
E1	13.06	13.46
E2	4.80	5.20
E3	1.80	2.50
L	19.62	20.22
L1	4.00	4.30
ϕP	3.40	3.80
$\phi P1$	7.00	7.30
S	5.95	6.35