

FRED

Ultrafast Soft Recovery Diode, 650V, 15A×2

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.

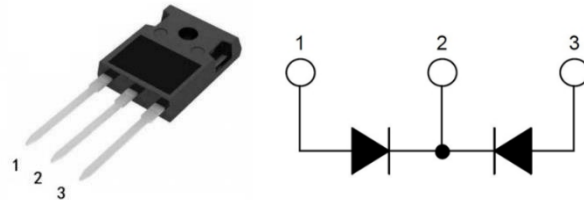
Features:

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

Product Summary	
V_R	650 V
$I_{F(AV)}$	2×15 A
t_{rr}	35 ns

Applications:

- Switched mode power supply
- Inverter welding
- Uninterruptible power supplies (UPS)



Absolute Maximum Ratings						
Parameter	Symbol	Test Conditions	Values	Units		
Repetitive peak reverse voltage	V_{RRM}		650	V		
Continuous forward current	Per device $I_{F(AV)}$	$T_A=100^\circ C$	30	A		
			Per diode		15	
Single pulse forward current	I_{FSM}	$T_A=25^\circ C$	270	A		
Maximum repetitive forward current	I_{FRM}	Square wave, 20kHz	75	A		
Operating junction	T_j		175	$^\circ C$		
Storage temperatures	T_{stg}		-55 to +175	$^\circ C$		
Electrical characteristics ($T_a=25^\circ C$ unless otherwise specified)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Breakdown voltage Blocking voltage (Per diode)	V_{BR} V_R	$I_R=100\mu A$	650			V
Forward voltage (Per diode)	V_F	$I_F=15 A$		1.30	1.60	V
		$I_F=15 A, T_j=125^\circ C$		1.20	1.50	V
Reverse leakage current (Per diode)	I_R	$V_R=V_{RRM}$			20	μA
		$T_j=150^\circ C, V_R=650V$			200	μA
Reverse recovery time (Per diode)	t_{rr}	$I_F=0.5A, I_R=1A, I_{RR}=0.25A$			35	ns
		$I_F=1A, V_R=30V, di/dt=200A/us$		25	35	ns
Thermal characteristics						
Parameter	Symbol	Typ	MAX	Units		
Junction-to-Case	R_{thJC}	-	0.80	$^\circ C/W$		

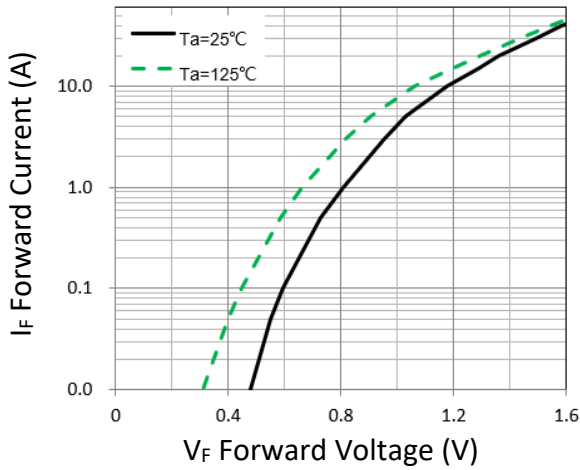


Figure 1. Forward Characteristic (typ.)

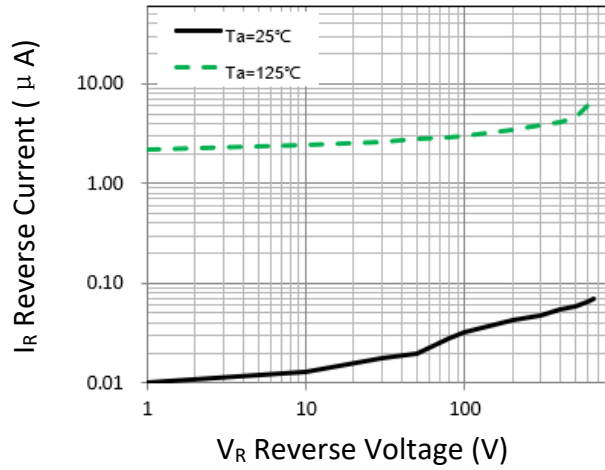


Figure 2. Reverse Characteristic (typ.)

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
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
ΦP1	7.00	7.30
S	5.95	6.35