

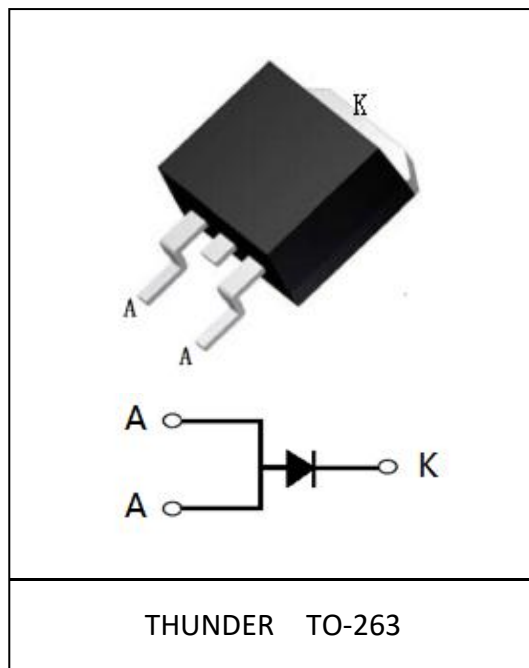
## FRED

### Ultrafast Soft Recovery Diode, 15A

**Features:**

- Ultrafast Recovery
- 175°C operating junction temperature
- High frequency operation
- Low power loss, less RFI and EMI
- Low  $I_R$  value
- High surge capacity
- Epitaxial chip construction

Product Summary	
$V_R$	600 V
$I_F(AV)$	15A
$t_{rr}$	24 ns


**Description/Applications**

These diodes are optimized to less losses and EMI/RFI in high frequency power conditioning system. The soft recovery behavior of the diodes offers the need as snubber in most applications. These devices are ideally suited for HF welding power converters and other applications where the switching losses are not significant portion of the total losses.

**Absolute Maximum Ratings**

Parameter	Symbol	Test Conditions	Values	Units
Repetitive peak reverse voltage	$V_{RRM}$		600	V
Continuous forward current	$I_F(AV)$	$T_c = 110^\circ\text{C}$	15	A
Single pulse forward current	$I_{FSM}$	$T_c = 25^\circ\text{C}$	150	
Maximum repetitive forward current	$I_{FRM}$	Square wave, 20kHz	30	
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)	$V_F$	$I_F=15A$		1.35	1.7	
		$I_F=15A, T_J=125^\circ C$		1.25	1.6	
Reverse leakage current(Per Diode)	$I_R$	$V_R=V_{RRM}$			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	50	ns
		$I_F=1A, V_R=30V, di/dt=200A/\mu s$		24	35	

**Thermal characteristics**

Paramter	Symbol	Typ	Units
Junction-to-Case	$R_{\theta JC}$	2.5	$^\circ C/W$

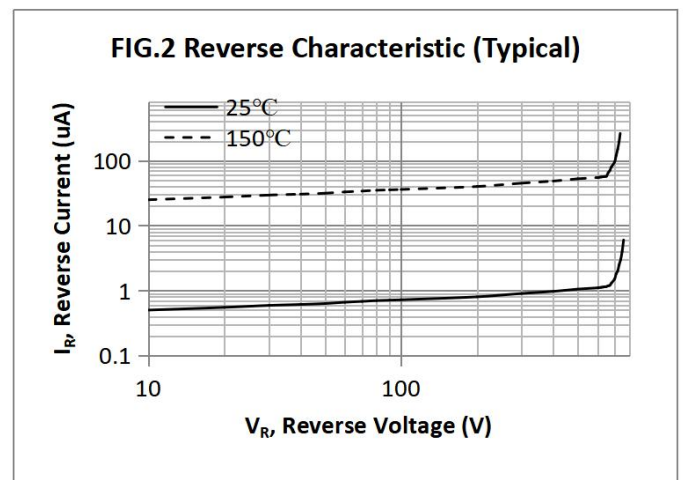
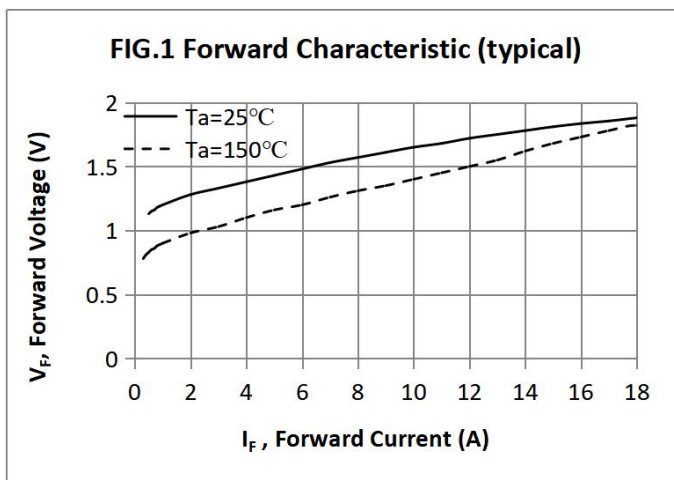
**Electrical performance (typical)**


FIG.3 Reverse Recover Time vs. Current Rate of Change

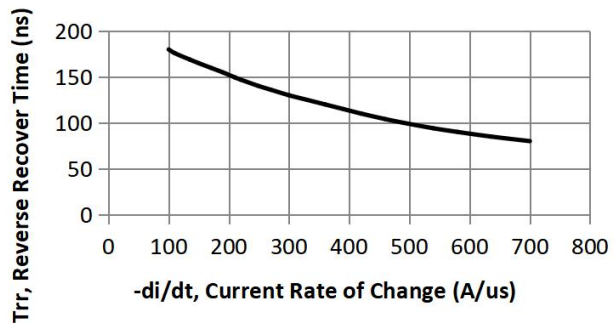


FIG.4 Reverse Recover Charge vs. Current Rate of Change

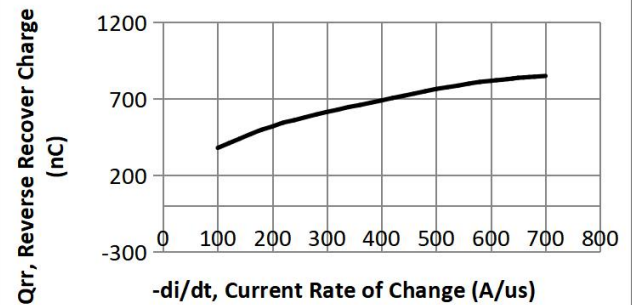


FIG.5 Reverse Recover Current vs. Current Rate of Change

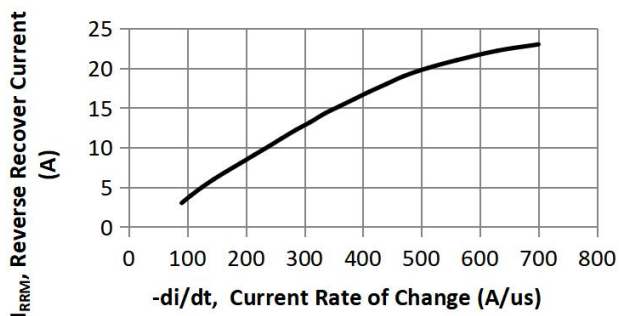


FIG.6 Average Forward Current vs. Case Temperature

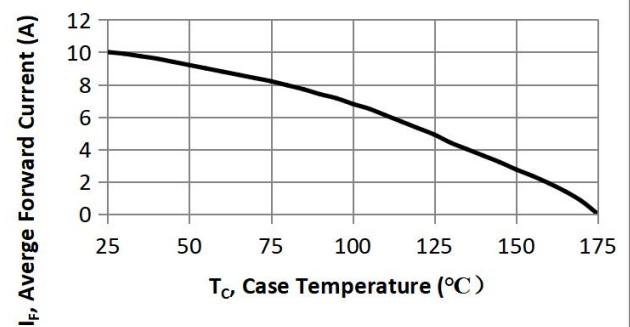
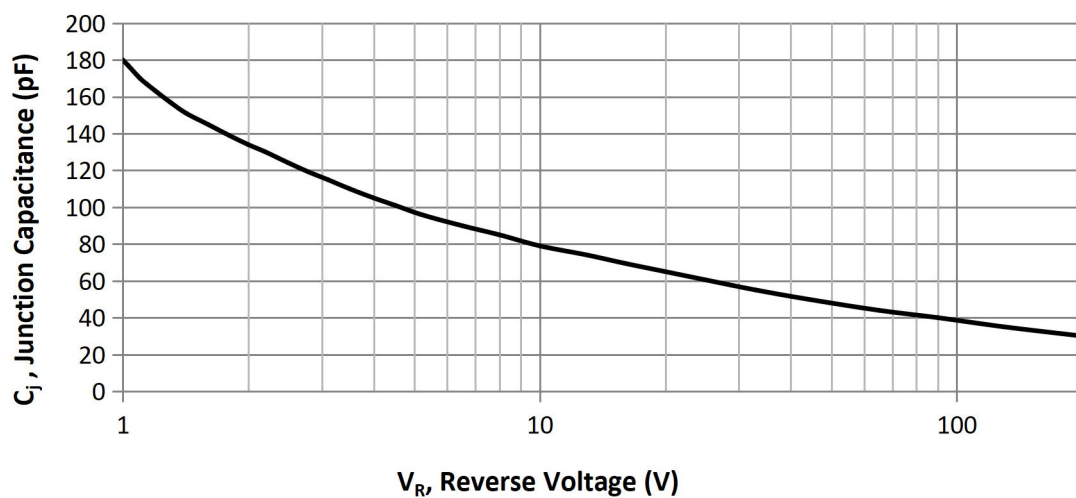
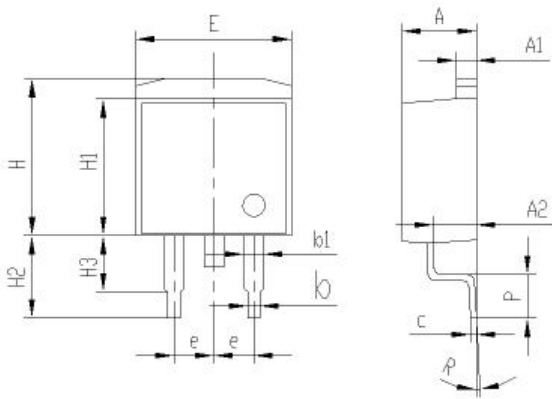


FIG.7 Junction Capacitance vs. Reverse Voltage



## Package Information

### TO-263 PACKAGE



Symbol	Dimensions (millimeters)	
	Min.	Max.
A	4.50	4.90
A1	1.17	1.37
A2	2.40	2.80
b	0.60	1.00
b1	0.95	1.35
c	0.26	0.50
e	2.34	2.74
E	9.70	10.1
H	9.80	10.2
H1	8.50	8.90
H2	5.05	5.45
H3	3.60	4.00
R	0°	6°
P	2.55	2.95

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