

International IOR Rectifier

80EPF..S SERIES

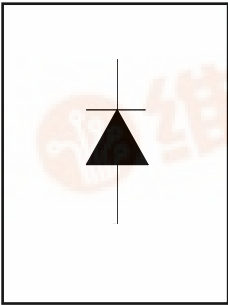
SURFACE MOUNTABLE FAST RECOVERY RECTIFIER DIODE

Description/Features

The 80EPF..S soft recovery rectifier series has been optimized for combined short reverse recovery time and low forward voltage drop. The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

Typical applications are both:

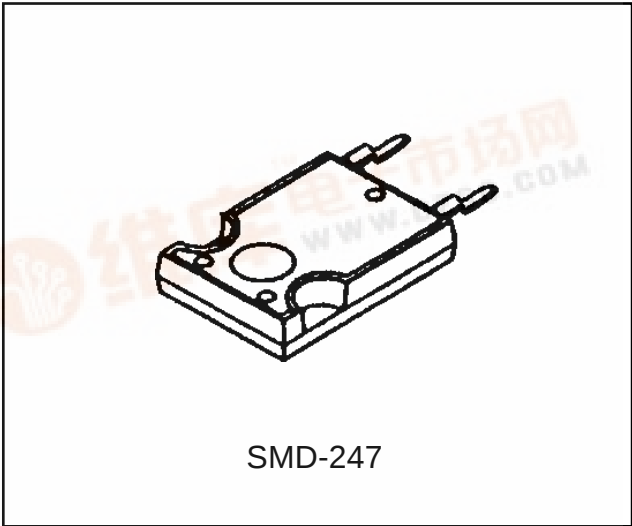
- output rectification and freewheeling in inverters, choppers and converters
- and input rectifications where severe restrictions on conducted EMI should be met.



V_F	$< 1V @ 40A$
t_{rr}	$= 70ns$
V_{RRM}	200 to 600V

Major Ratings and Characteristics

Characteristics	80EPF..S	Units
$I_{F(AV)}$ Sinusoidal waveform	80	A
V_{RRM}	200 to 600	V
I_{FSM}	830	A
$V_F @ 40 A, T_J = 25^{\circ}C$	1	V
$t_{rr} @ 1A, -100A/\mu s$	70	ns
T_J	-40 to 125	$^{\circ}C$



SMD-247

80EPF..S Series



Voltage Ratings

Part Number	V_{RRM} , maximum peak reverse voltage V	V_{RSM} , maximum non repetitive peak reverse voltage V	I_{RRM} 125°C mA
80EPF02S	200	300	5
80EPF04S	400	500	
80EPF06S	600	700	

Absolute Maximum Ratings

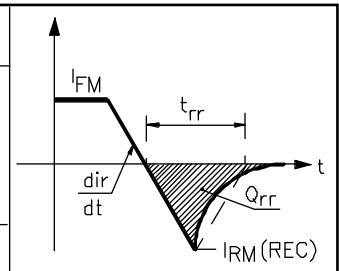
Parameters	80EPF..S	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	80	A	@ $T_C = 70^\circ\text{C}$, 180° conduction half sine wave
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	700	A	10ms Sine pulse, rated V_{RRM} applied
	830		10ms Sine pulse, no voltage reapplied
I^2t Max. I^2t for fusing	2450	A^2s	10ms Sine pulse, rated V_{RRM} applied
	3465		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	34650	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

Electrical Specifications

Parameters		80EPF..S	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop	1.2	V	@ 80A, T _J = 25°C	
r _t	Forward slope resistance	3.5	mΩ	T _J = 125°C	
V _{F(TO)}	Threshold voltage	0.85	V		
I _{RM}	Max. Reverse Leakage Current	0.1	mA	T _J = 25 °C	V _R = rated V _{RRM}
		5		T _J = 125 °C	

Recovery Characteristics

Parameters	80EPF..S	Units	Conditions
t_{rr} Reverse Recovery Time	180	ns	$I_F @ 80\text{Apk}$ @ 25A/ μs @ 25°C
I_{rr} Reverse Recovery Current	3.4	A	
Q_{rr} Reverse Recovery Charge	0.5	μC	
S Snap Factor	0.5		



Thermal-Mechanical Specifications

Parameters	80EPF..S	Units	Conditions
T_J Max. Junction Temperature Range	-40 to 125	°C	
T_{stg} Max. Storage Temperature Range	-40 to 125	°C	
R_{thJC} Max. Thermal Resistance Junction to Case	0.35	°C/W	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	40	°C/W	
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.2	°C/W	Mounting surface , smooth and greased
wt Approximate Weight	6 (0.21)	g (oz.)	
T Mounting Torque	Min. 6 (5)	Kg-cm (lbf-in)	
	Max. 12 (10)		
Case Style	SMD-247		

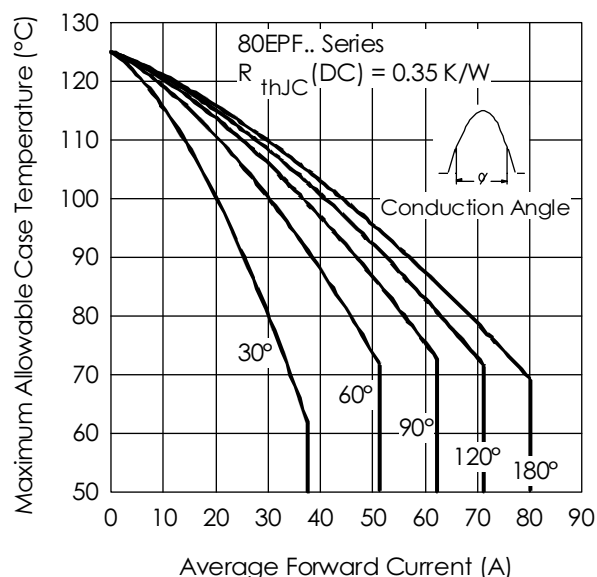


Fig. 1 - Current Rating Characteristics

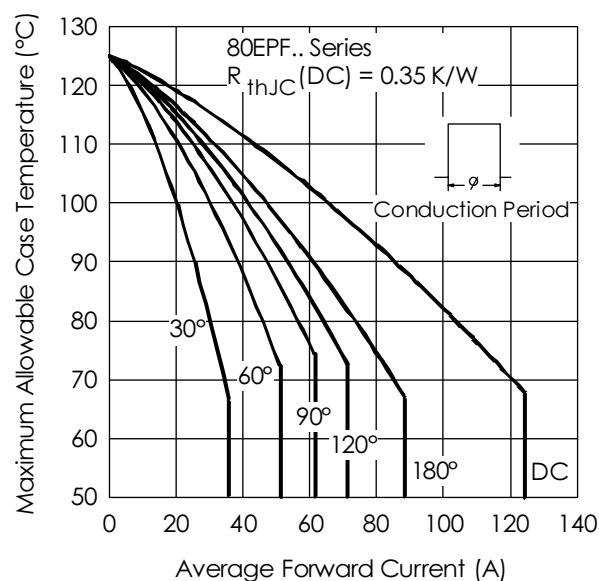


Fig. 2 - Current Rating Characteristics

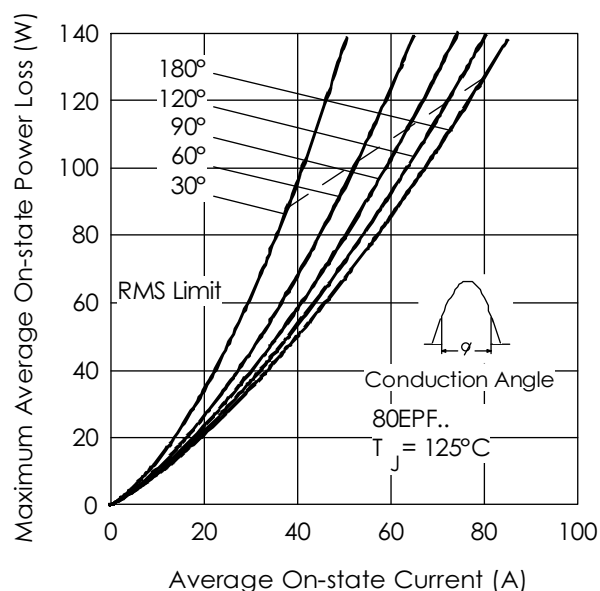


Fig. 3 - Forward Power Loss Characteristics

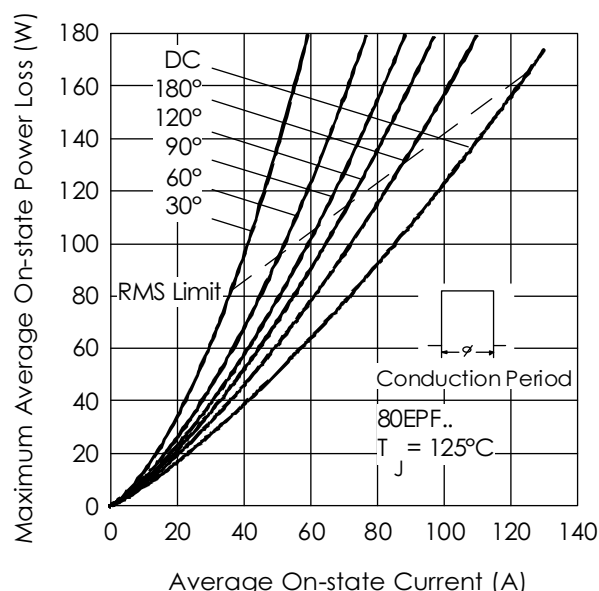


Fig. 4 - Forward Power Loss Characteristics

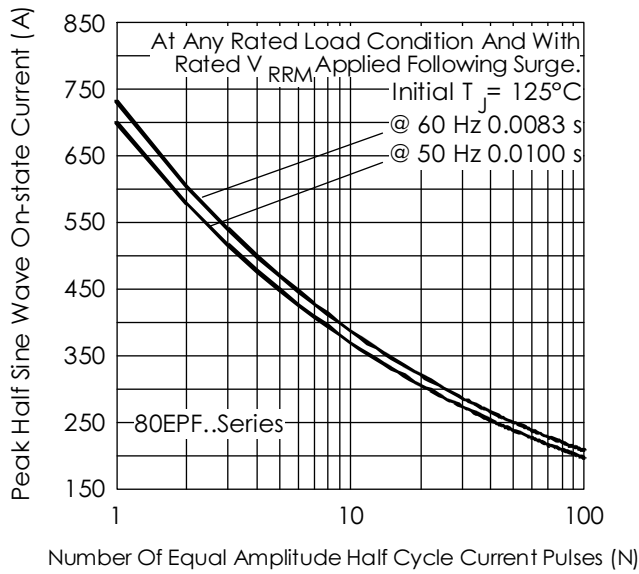


Fig. 5 - Maximum Non-Repetitive Surge Current

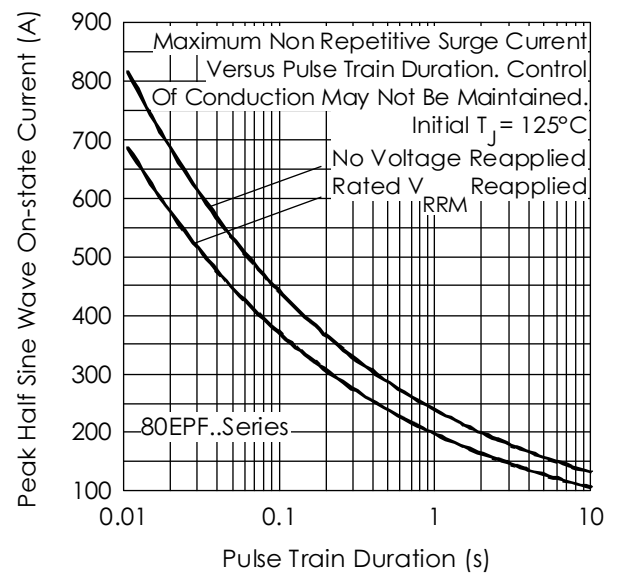


Fig. 6 - Maximum Non-Repetitive Surge Current

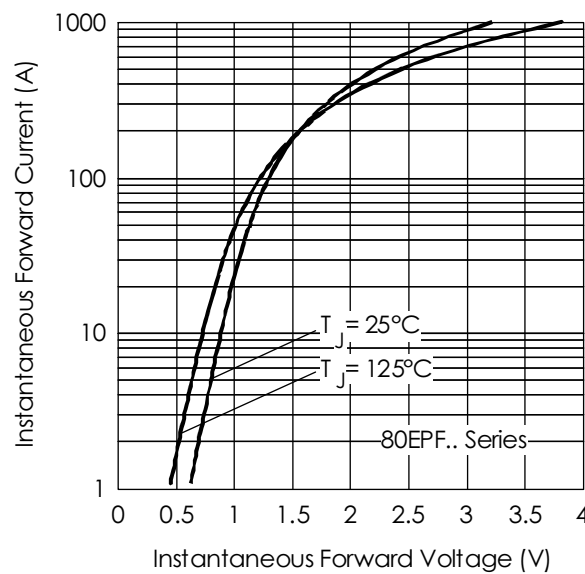


Fig. 7 - Forward Voltage Drop Characteristics

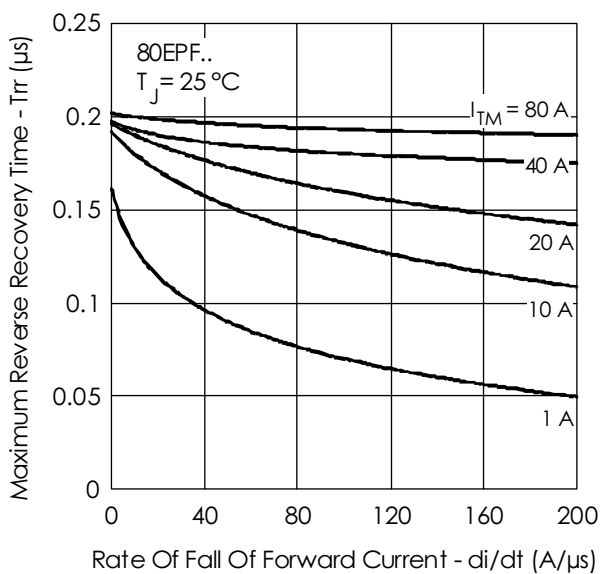


Fig. 8 - Recovery Time Characteristics, $T_J = 25^\circ\text{C}$

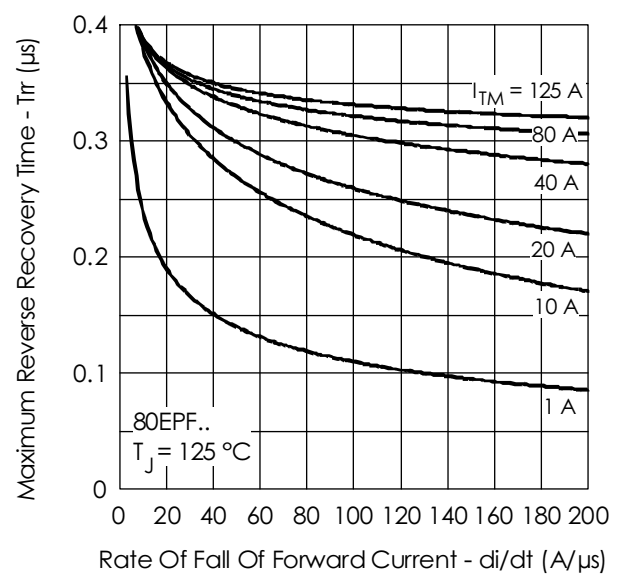


Fig. 9 - Recovery Time Characteristics, $T_J = 125^\circ\text{C}$

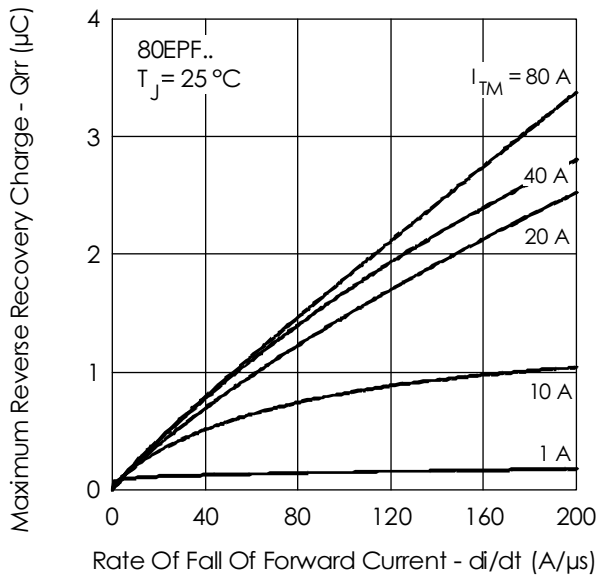


Fig. 10 - Recovery Charge Characteristics, $T_J = 25^\circ\text{C}$

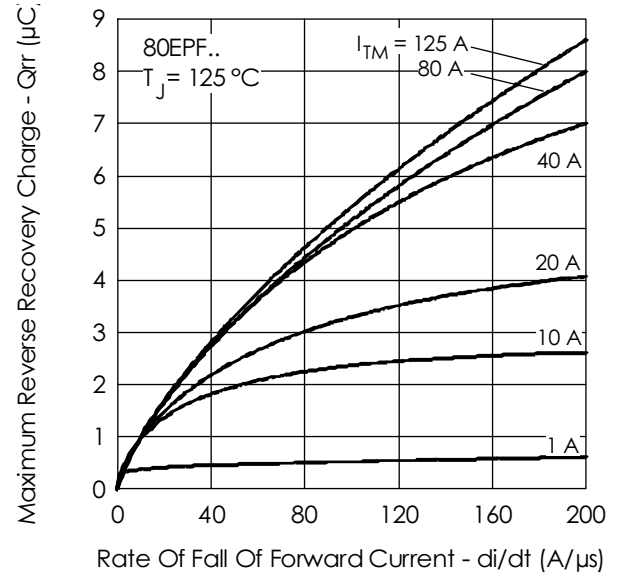


Fig. 11 - Recovery Charge Characteristics, $T_J = 125^\circ\text{C}$

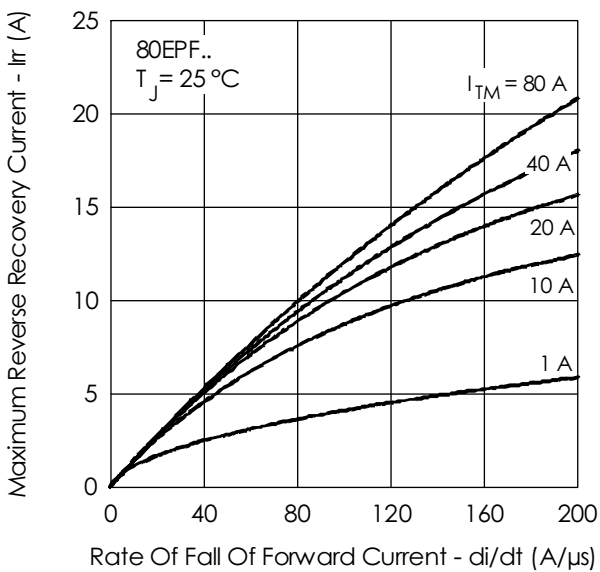


Fig. 12 - Recovery Current Characteristics, $T_J = 25^\circ\text{C}$

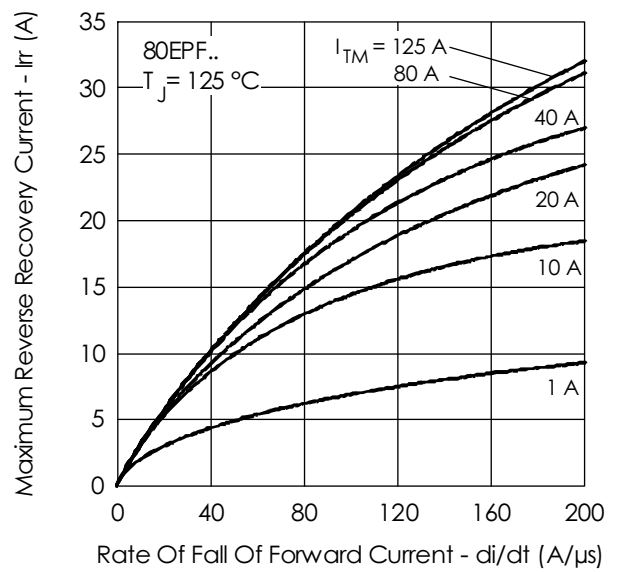


Fig. 13 - Recovery Current Characteristics, $T_J = 125^\circ\text{C}$

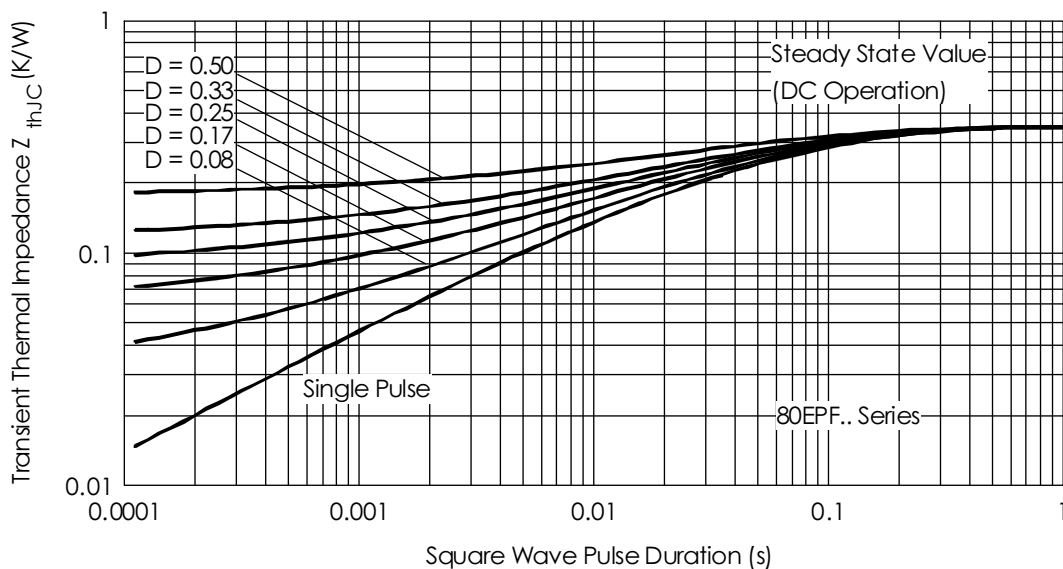
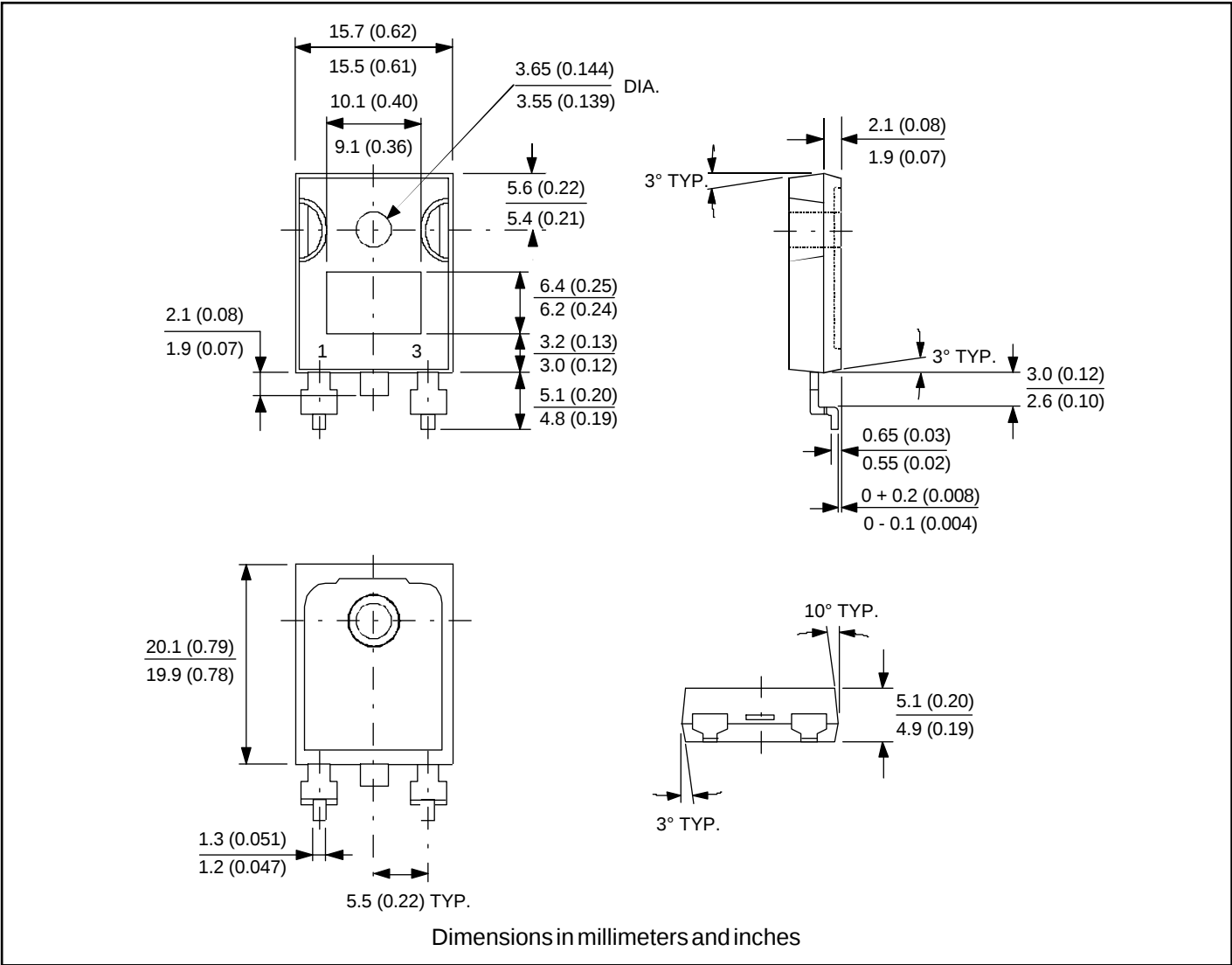


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Ordering Information Table

