

Description

These diodes are optimized to reduce losses and EMI/RFI in high frequency power conditioning systems. The softness of the recovery eliminates the need for a snubber in most applications.



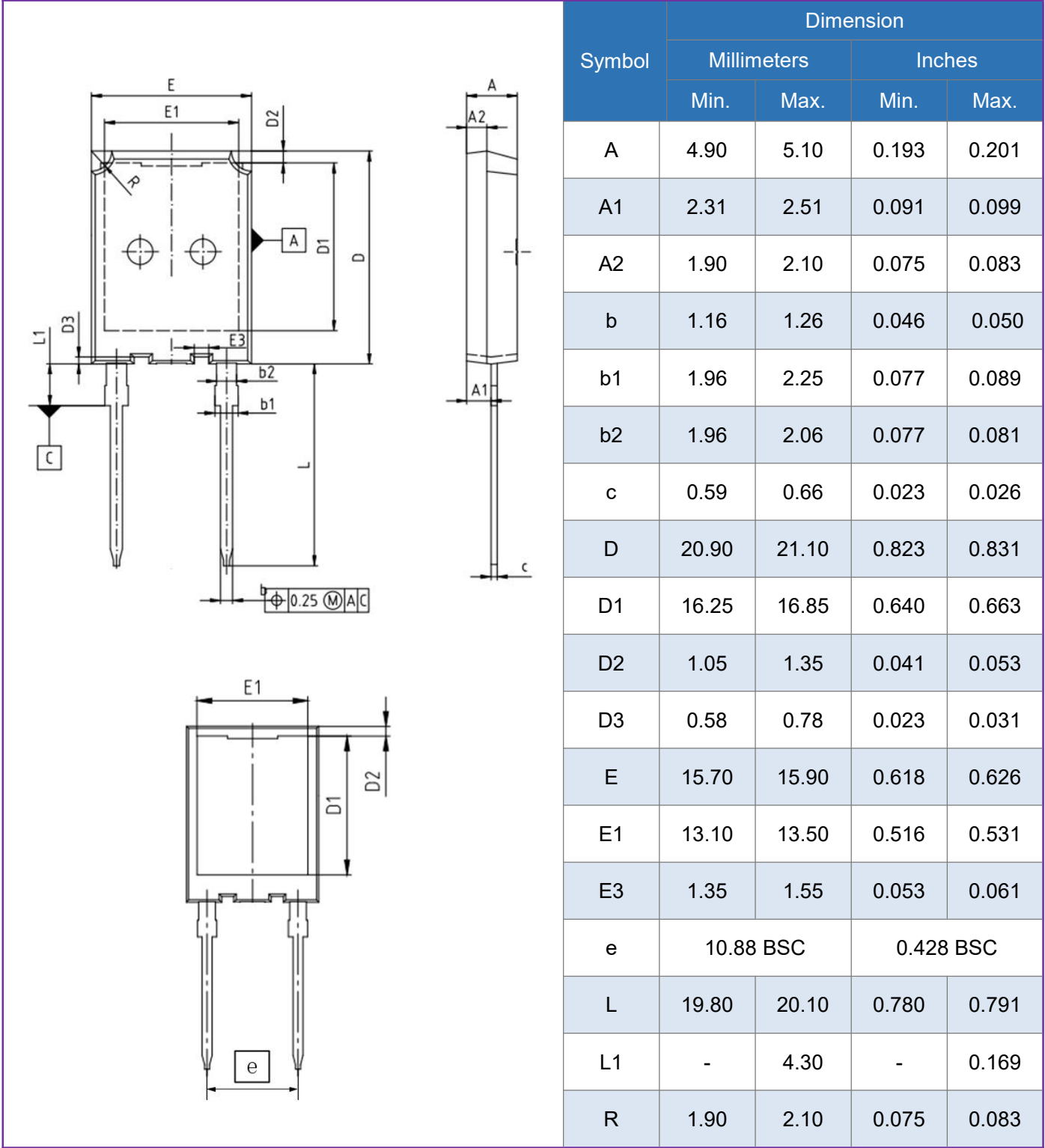
Features

- ◆ Diffused diode
- ◆ High voltage ratings
- ◆ High surge current capabilities
- ◆ Designed and qualified for industrial level

Applications

- ◆ Welders
- ◆ Power supplies
- ◆ Machine tool controls
- ◆ High power drives
- ◆ Medium traction applications
- ◆ Battery charges
- ◆ Freewheeling diodes

Dimensions (TO-247PLUS)



Maximum Ratings and Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions			Min	Typ	Max	Unit	
Peak repetitive reverse voltage	V _R					1000		V	
Average forward current at case temperature@125°C	I _{F(AV)}	180° conduction, half sine wave				150		A	
Repetitive Peak Surge Current (Square Wave, 20 kHz)	I _{FRM}					300		A	
Maximum RMS forward current	I _{F(RMS)}	DC at 110°C				235		A	
Maximum peak, one cycle forward, non-repetitive surge current	I _{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave Initial T _J = T _{Jmax}		3000		A	
		t = 8.3 ms				3140			
Maximum I ² t for fusing	I ² t	t = 10 ms					45		kA ² s
		t = 8.3 ms					41		
Slope resistance	r _f	T _J = T _{Jmax}				0.97		m Ω	
Threshold voltage	V _{F(T0)}					0.80		V	
Maximum forward voltage drop	V _{FM}	I _{pk} = 600 A, T _J = 25 ° C, t _p = 10 ms sinusoidal wave					1.47	V	
Maximum junction operating and storage temperature range	T _J ,T _{STG}					-40 to +180		°C	
Maximum Non-Repetitive Peak Reverse Voltage	V _{RSM}						1100	V	
Reverse recovery time	t _{rr}	I _F =0.5A,I _R =1A,I _{RR} =0.25A					100	ns	
Peak recovery current	I _{RRM}	T _J = T _{Jmax}					15	mA	
Maximum thermal resistance, junction to case	R _{thJC}	DC operation					0.3	K/W	
Maximum thermal resistance, case to heatsink	R _{thCS}	Mounting surface, flat, smooth and greased					0.1		

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Current Ratings Characteristics

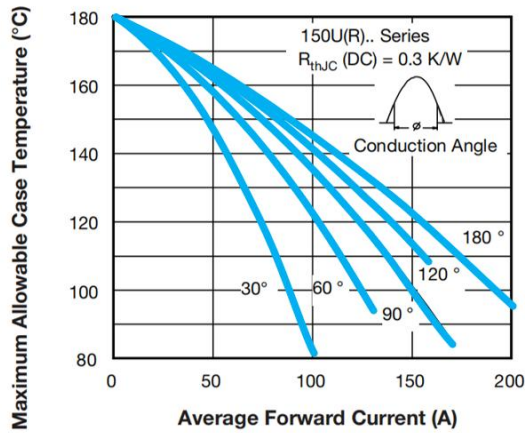


Figure 2. Current Ratings Characteristics

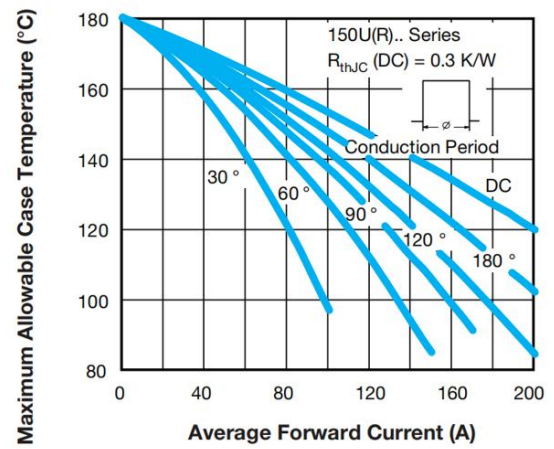


Figure 3. Forward Power Loss Characteristics

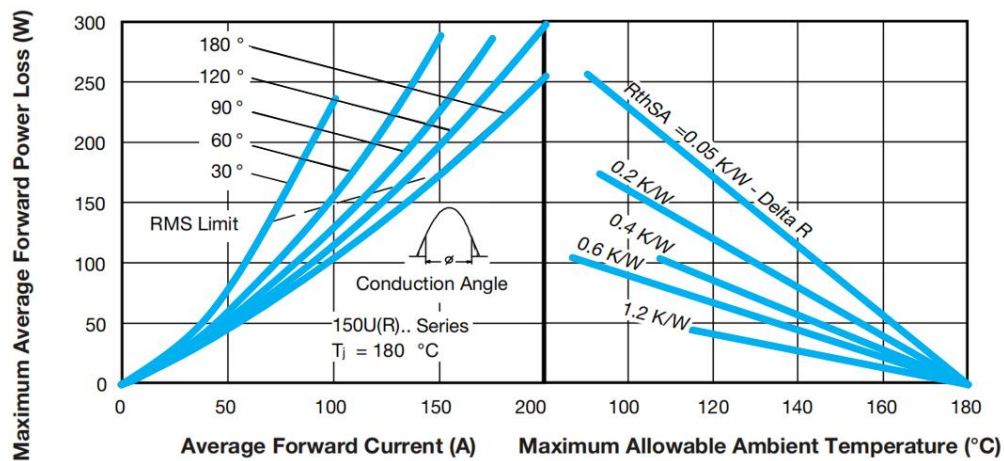


Figure 4. Forward Power Loss Characteristics

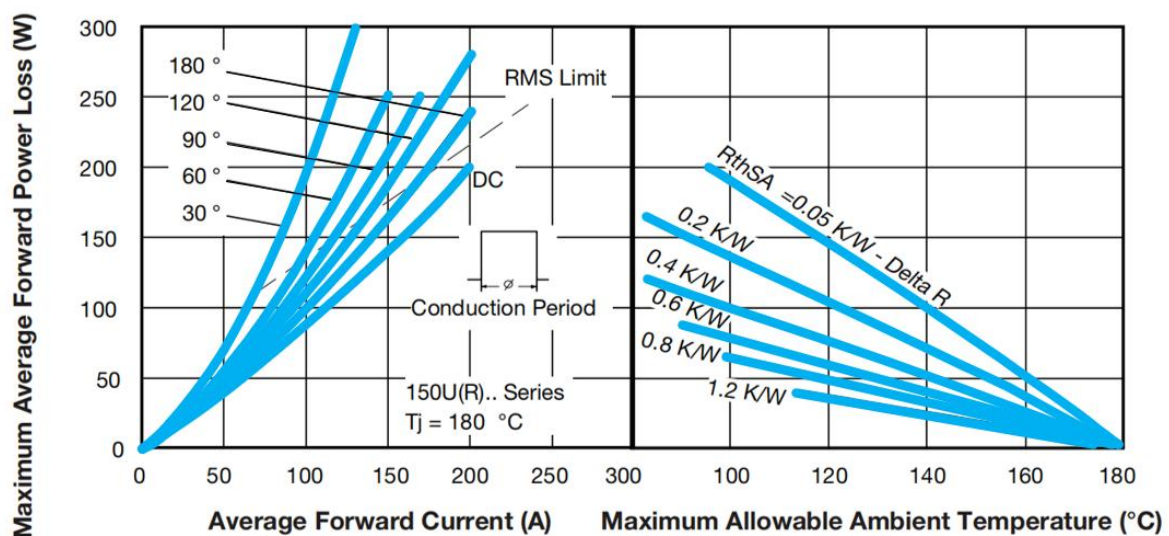


Figure 5. Maximum Non-Repetitive Surge Current

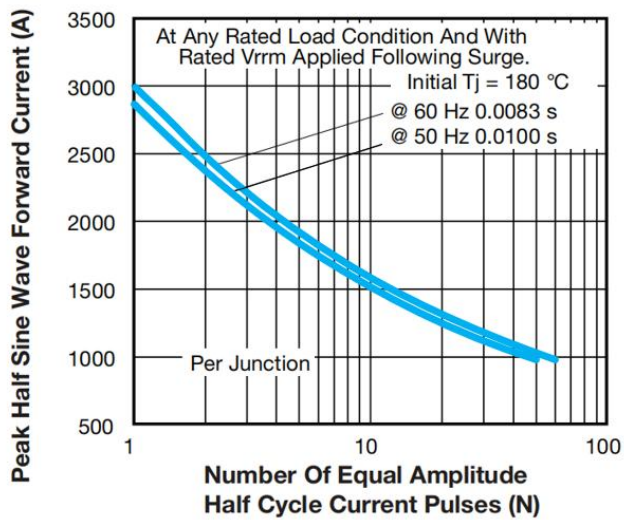


Figure 6. Maximum Non-Repetitive Surge Current

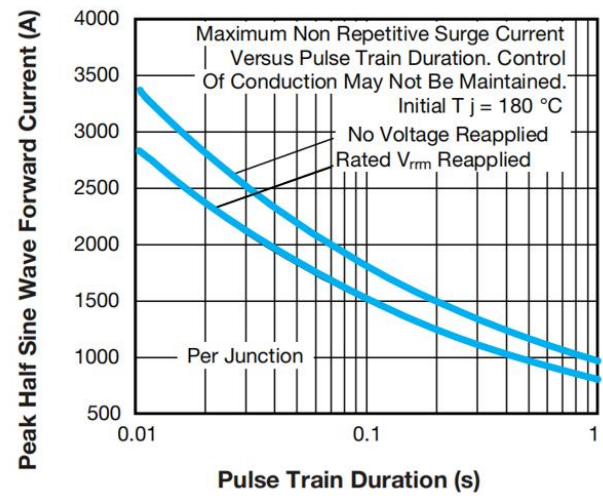
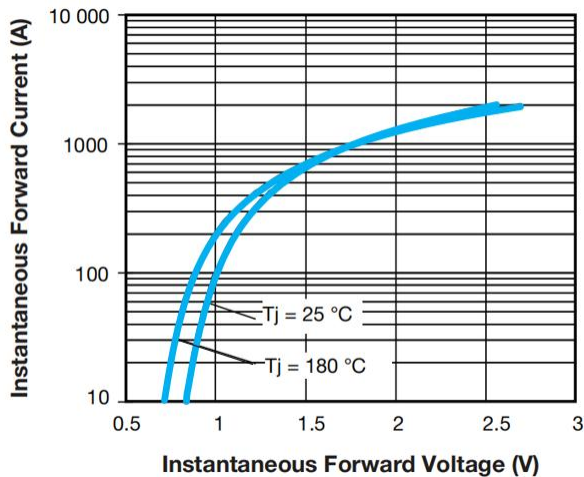
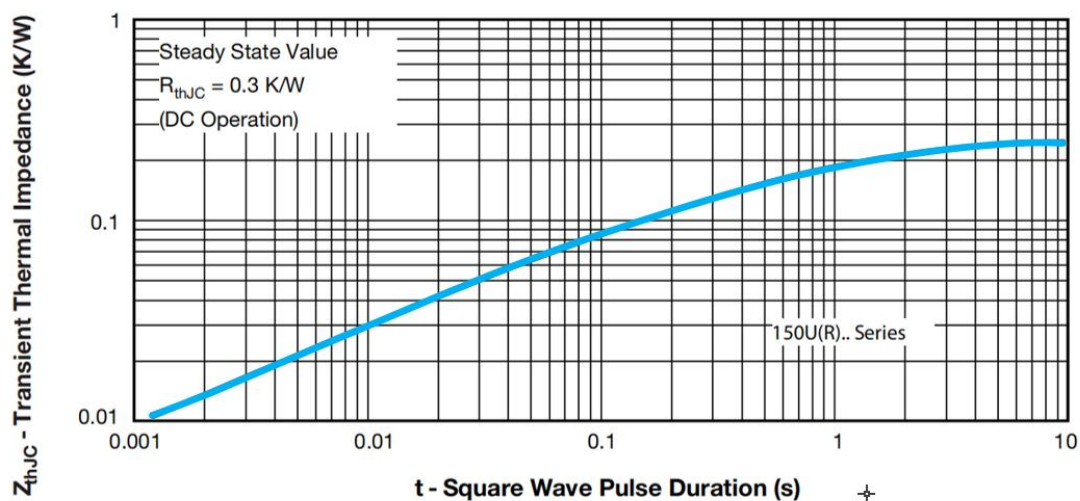
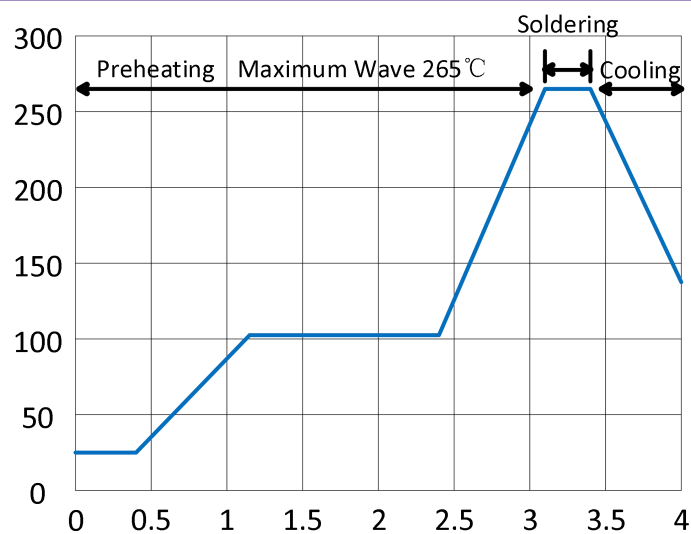


Figure 7. Forward Voltage Drop Characteristics

Figure 8. Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

Wave Soldering Parameters



Reflow Condition	Lead-free Assembly
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time