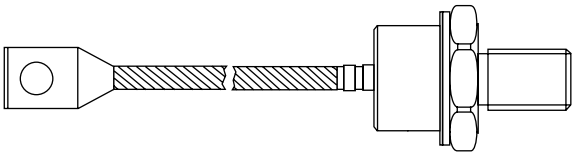
Standard Recovery Diodes (Stud Version), 150 A



DO-205AA (DO-8)

FEATURES

- Diffused diode
- High voltage ratings up to 1200 V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case
- RoHS compliant
- Designed and qualified for industrial level

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY	
$I_{F(AV)}$	150 A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		150	A
	T_C	125	°C
$I_{F(RMS)}$		235	A
I_{FSM}	50 Hz	3000	
	60 Hz	3140	
I^2t	50 Hz	45	kA^2s
	60 Hz	41	
V_{RRM}	Range	600 to 1200	V
T_J		- 40 to 180	°C

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	V_{RRM}, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = T_J$ MAXIMUM mA
150U(R)..	60	600	700	15
	80	800	900	
	100	1000	1100	
	120	1200	1300	

FORWARD CONDUCTION

PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave			150	A
					125	°C
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 $T_J = T_J$ maximum	3000	
		t = 8.3 ms			3140	
Maximum I^2t for fusing	I^2t	t = 10 ms			45	kA^2s
		t = 8.3 ms			41	
Slope resistance	r_f	$T_J = T_J$ maximum			0.97	mΩ
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	

THERMAL AND MECHANICAL SPECIFICATIONS

PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range		T_J, T_{Stg}		- 40 to 180	°C
Maximum thermal resistance, junction to case		R_{thJC}	DC operation	0.3	K/W
Maximum thermal resistance, case to heatsink		R_{thCS}	Mounting surface, smooth, flat and greased	0.1	
Maximum allowed mounting torque + 0 - 20 %	minimum		Not lubricated threads	17	N · m
	maximum		Lubricated threads	14.5	
Approximate weight				130	g
Case style			See dimensions - link at the end of datasheet	DO-205AA (DO-8)	

ΔR_{thJC} CONDUCTION

CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.031	0.023	$T_J = T_J$ maximum	K/W
120°	0.038	0.040		
90°	0.048	0.053		
60°	0.071	0.075		
30°	0.120	0.121		

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

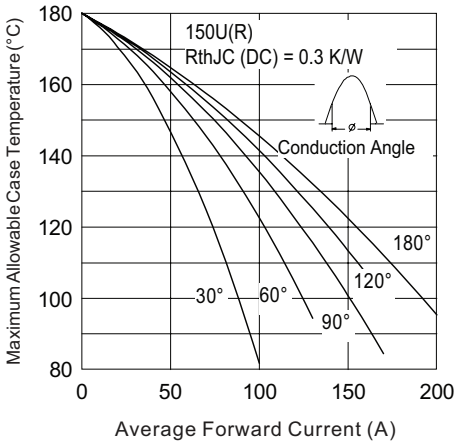


Fig. 1 - Current Ratings Characteristics

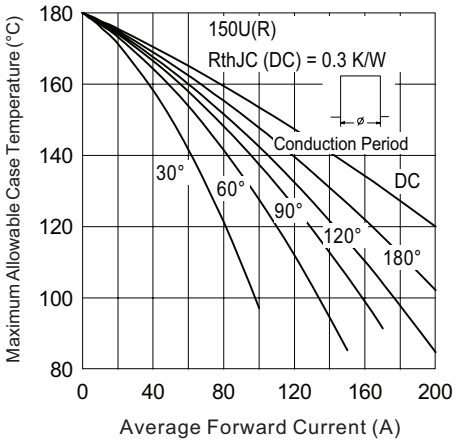


Fig. 2 - Current Ratings Characteristics

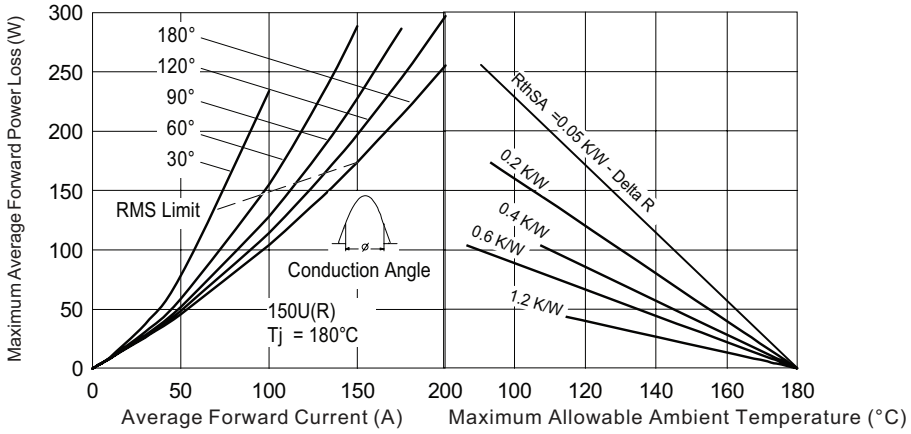


Fig. 3 - Forward Power Loss Characteristics

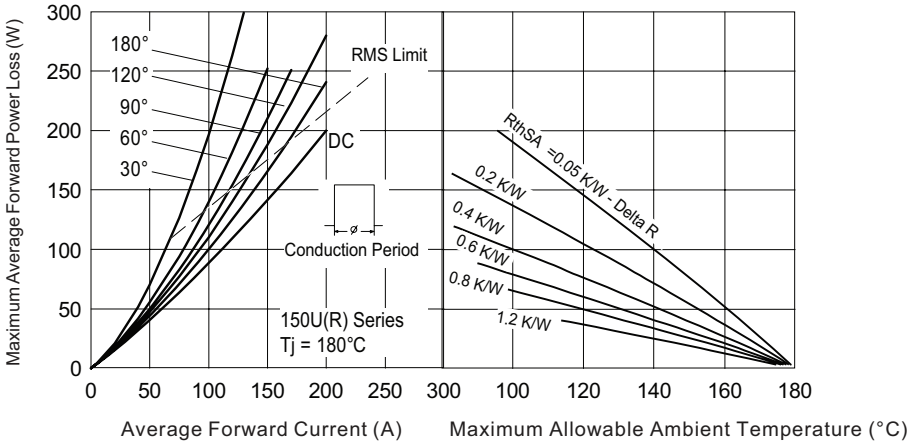


Fig. 4 - Forward Power Loss Characteristics

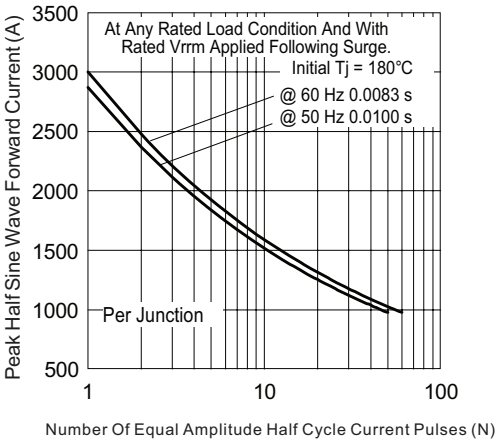


Fig. 5 - Maximum Non-Repetitive Surge Current

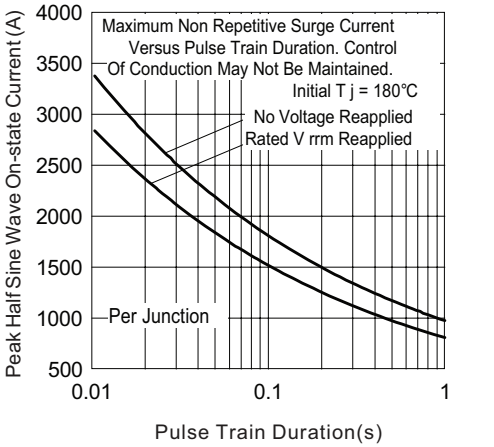


Fig. 6 - Maximum Non-Repetitive Surge Current

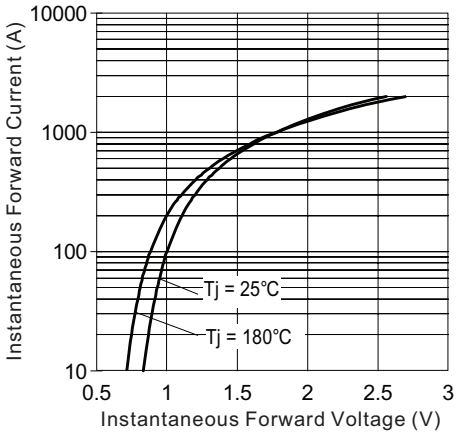


Fig. 7 - Forward Voltage Drop Characteristics

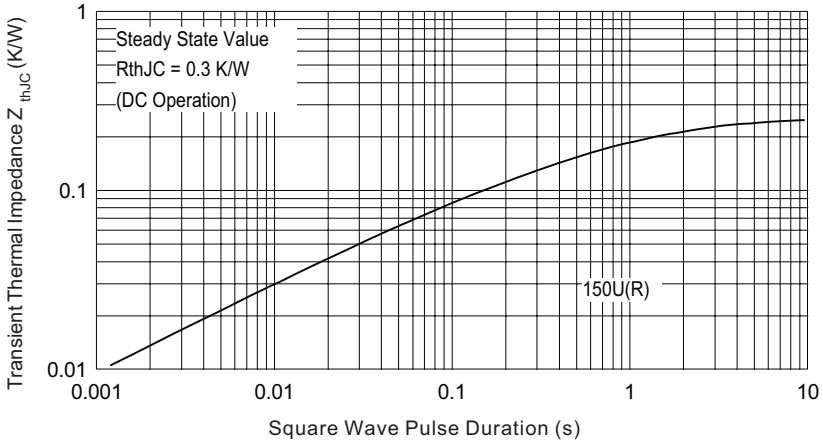
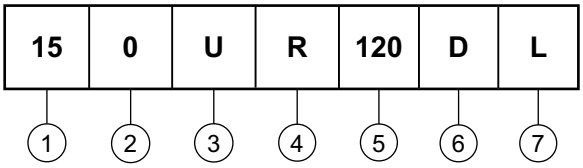


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE

Device code



1 - 15 = Essential part number

2 - 0 = Standard device

3 - U = Stud normal polarity (cathode to stud)

4 - None = Stud normal polarity (cathode to stud)

R = Stud reverse polarity (anode to stud)

5 - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)

6 - Diffused diode

7 - L = Stud base 1/2"-20UNF-2A threads

None = Stud base 3/8"-24UNF-2A threads

Note: For metric device M12 x 1.75 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95315

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