

Standard Recovery Diodes, (Stud Version), 150 A



DO-8 (DO-205AA)

FEATURES

- Diffused diode
- High voltage ratings up to 1200 V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case
- Designed and qualified for industrial level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	150 A
Package	DO-8 (DO-205AA)
Circuit configuration	Single

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 ² s
	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
VS-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 ² t for fusing	I ² t	t = 10 ms			45	
		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
Maximum junction operating and storage temperature range	T_J, T_{Stg}			-40 to +180
Maximum thermal resistance, junction to case	R_{thJC}	DC operation		0.3
Maximum thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth, flat and greased		0.1
Maximum allowable mounting torque + 0 - 20 %		Not lubricated threads tightening on hexagon		17
		Lubricated threads tightening on hexagon		14.5
		Not lubricated threads tightening on nut		14
		Lubricated threads tightening on nut		12
Approximate weight				130
Case style		See dimensions - link at the end of datasheet		DO-8 (DO-205AA)

ΔR_{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.031	0.023	$T_J = T_J\text{ maximum}$	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

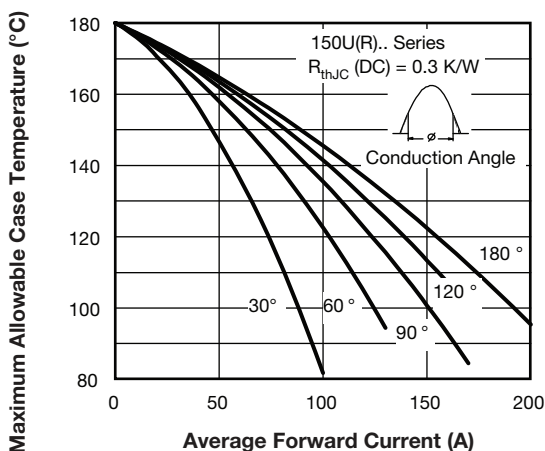


Fig. 1 - Current Ratings Characteristics

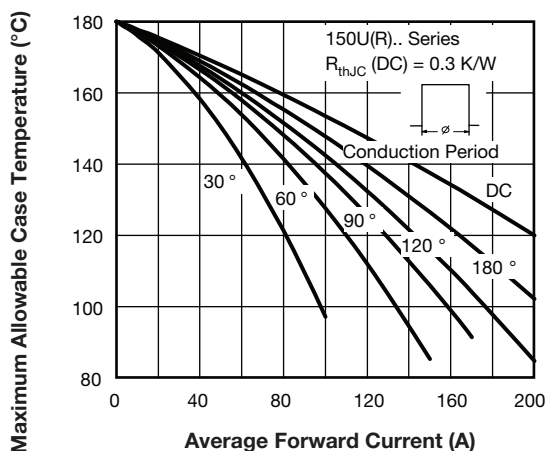


Fig. 2 - Current Ratings Characteristics

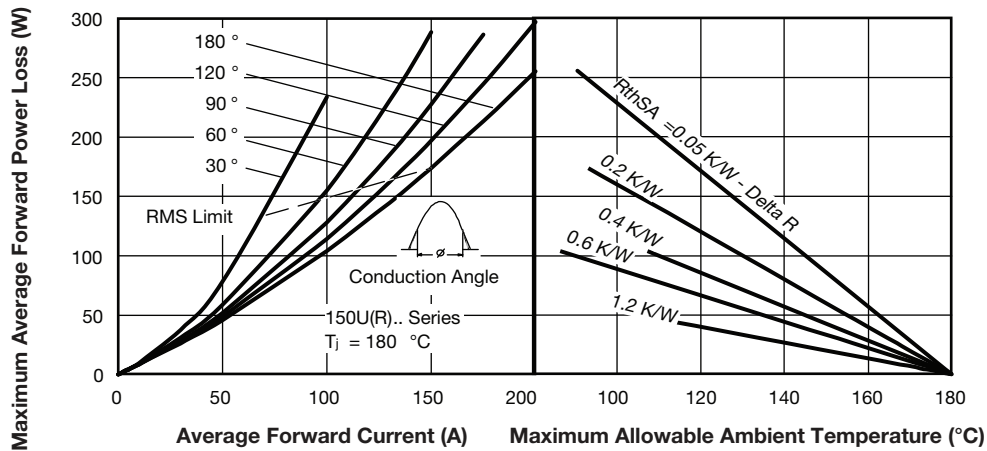


Fig. 3 - Forward Power Loss Characteristics

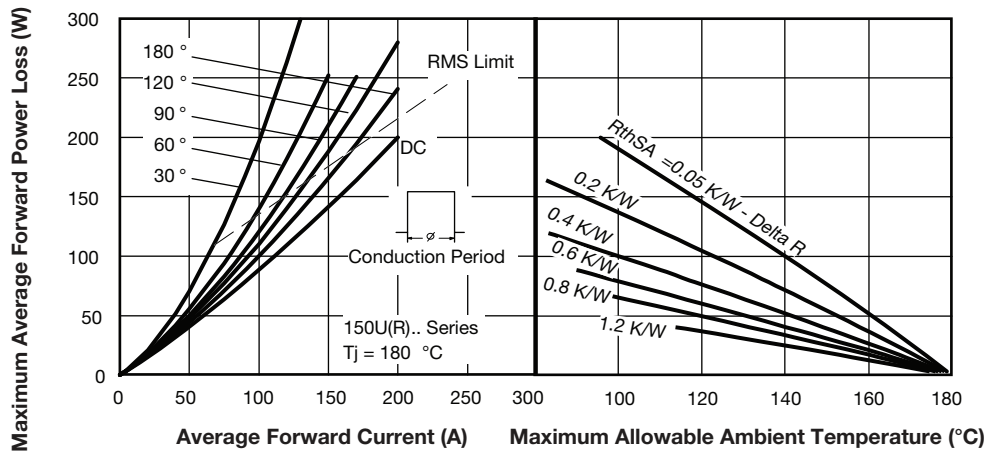


Fig. 4 - Forward Power Loss Characteristics

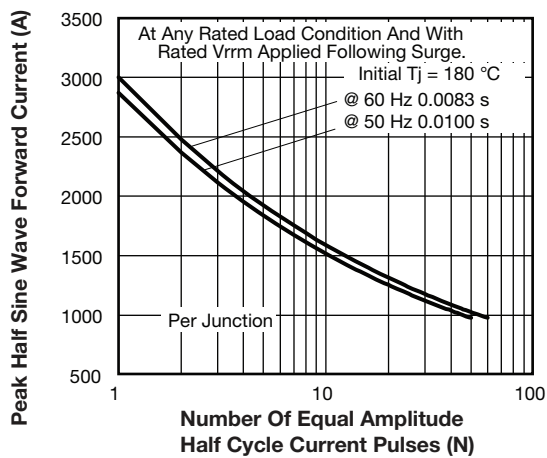


Fig. 5 - Maximum Non-Repetitive Surge Current

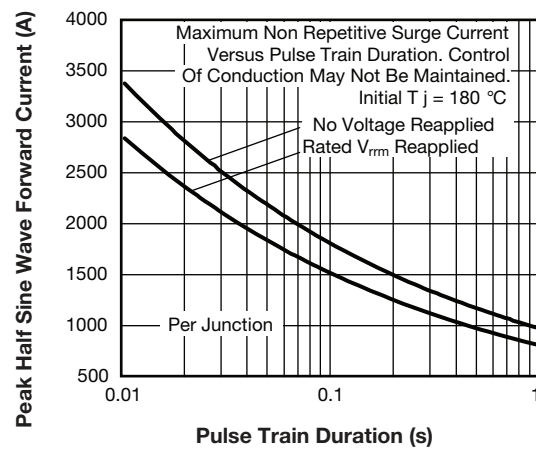


Fig. 6 - Maximum Non-Repetitive Surge Current

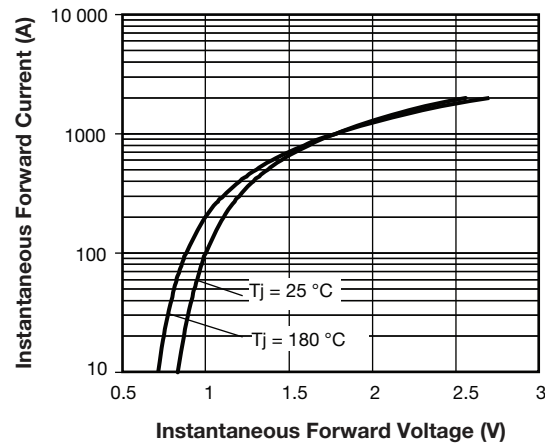
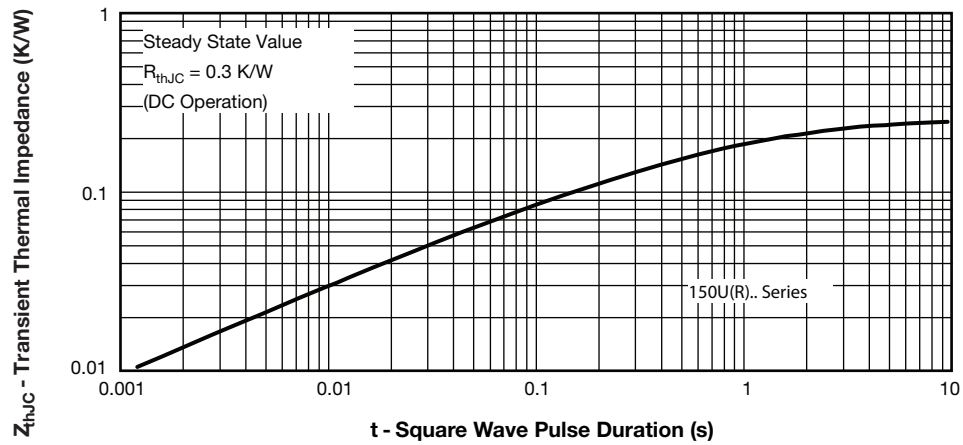


Fig. 7 - Forward Voltage Drop Characteristics


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE

Device code	VS-	15	0	U	R	120	D	L
	1	2	3	4	5	6	7	8

- 1 - Vishay Semiconductors product
- 2 - 15 = essential part number
- 3 - 0 = standard device
- 4 - U = stud normal polarity (cathode to stud)
- 5 - None = stud normal polarity (cathode to stud)
R = stud reverse polarity (anode to stud)
- 6 - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
- 7 - Diffused diode
- 8 - L = stud base 1/2"-24UNF-2A threads
None = stud base 3/8"-24UNF-2A threads

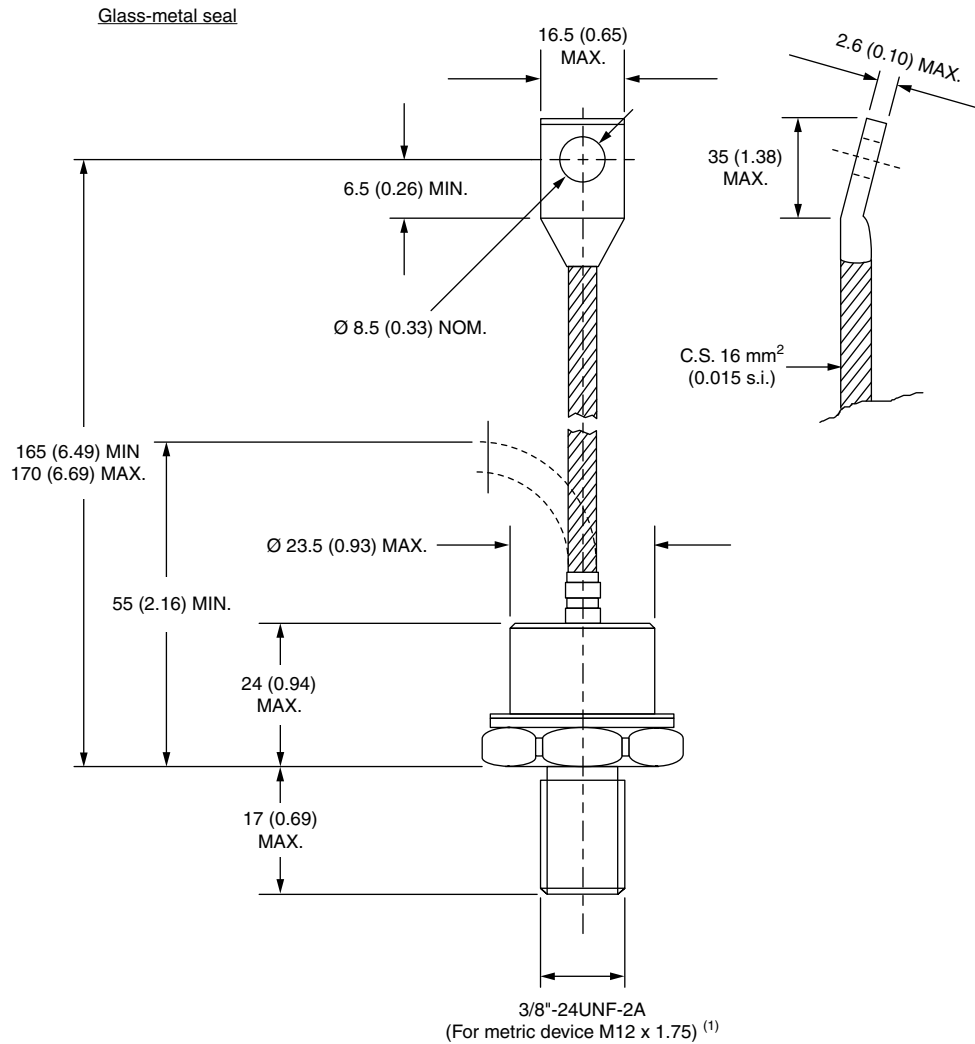
Note

- For metric device M12 x 1.75 contact factory

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

DO-205AA (DO-8) for 150U(R) Series

DIMENSIONS in millimeters (inches)



Note

⁽¹⁾ For stud base 1/2"-20UNF-2A threads; refer to "Ordering Information Table"



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