



## Standard Recovery Diodes, (Stud Version), 150 A



DO-8 (DO-205AA)



RoHS  
COMPLIANT

### 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](http://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 <sup>2</sup> 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	
Maximum peak, one cycle forward, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_{J \text{ maximum}}$	A
		t = 8.3 ms			
t = 10 ms	3140				
t = 8.3 ms	45				
Maximum $I^2t$ for fusing	$I^2t$			41	kA <sup>2</sup> s
Slope resistance	$r_f$	$T_J = T_{J \text{ maximum}}$		0.97	mΩ
Threshold voltage	$V_{F(T0)}$			0.80	V
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 600 \text{ A}, T_J = 25 \text{ °C}, t_p = 10 \text{ ms sinusoidal wave}$		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 allowable mounting torque + 0 - 20 %		Not lubricated threads tightening on hexagon		17	N · m
		Lubricated threads tightening on hexagon		14.5	
		Not lubricated threads tightening on nut		14	
		Lubricated threads tightening on nut		12	
Approximate weight				130	g
Case style		See dimensions - link at the end of datasheet		DO-8 (DO-205AA)	

$\Delta R_{thJC}$ 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

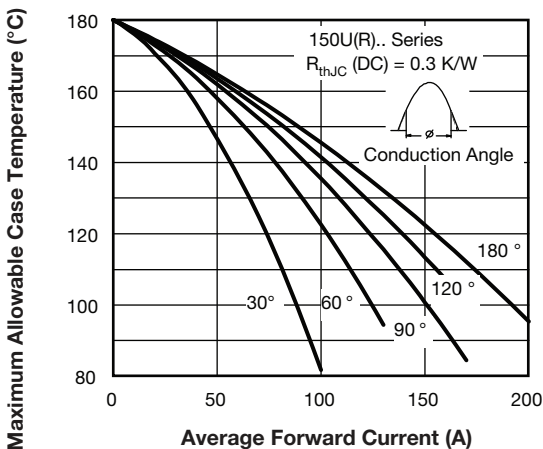


Fig. 1 - Current Ratings Characteristics

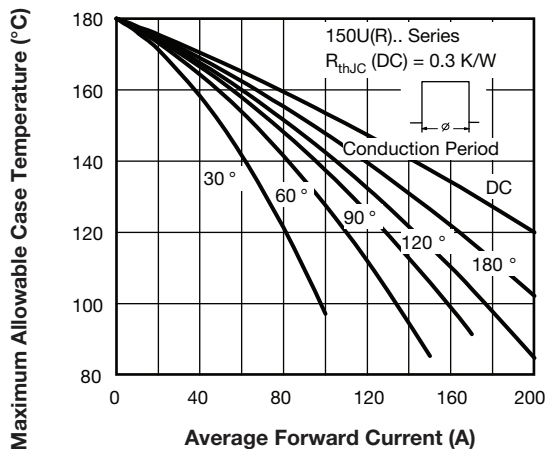


Fig. 2 - Current Ratings Characteristics

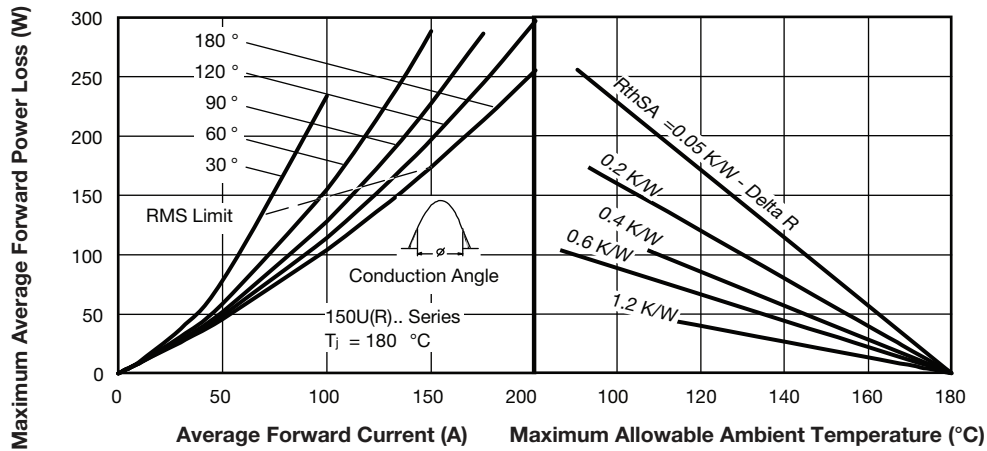


Fig. 3 - Forward Power Loss Characteristics

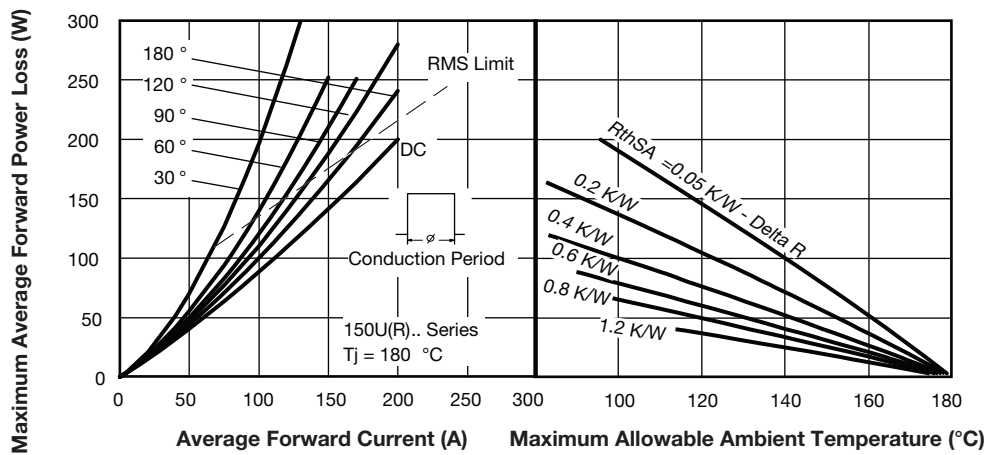


Fig. 4 - Forward Power Loss Characteristics

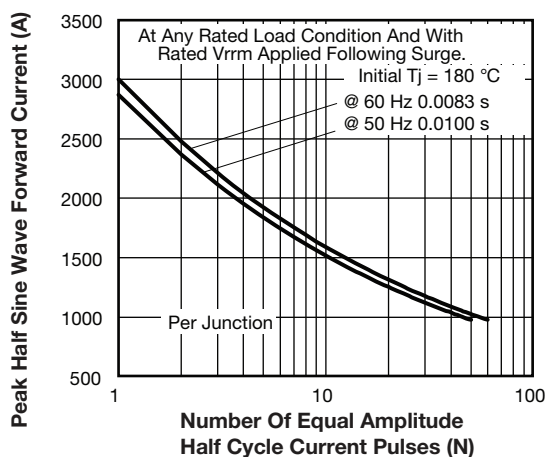


Fig. 5 - Maximum Non-Repetitive Surge Current

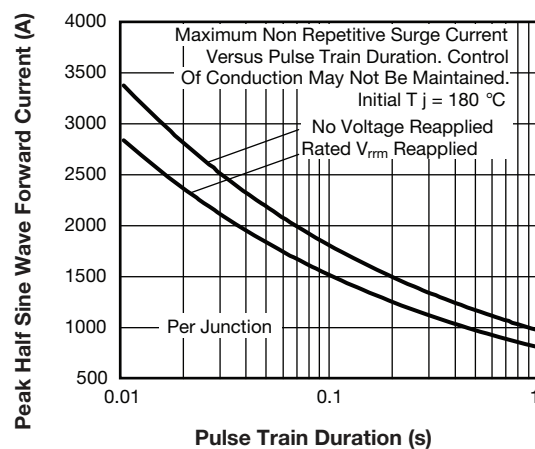


Fig. 6 - Maximum Non-Repetitive Surge Current

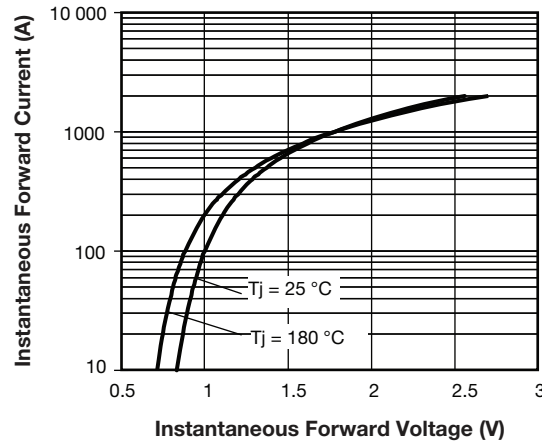


Fig. 7 - Forward Voltage Drop Characteristics

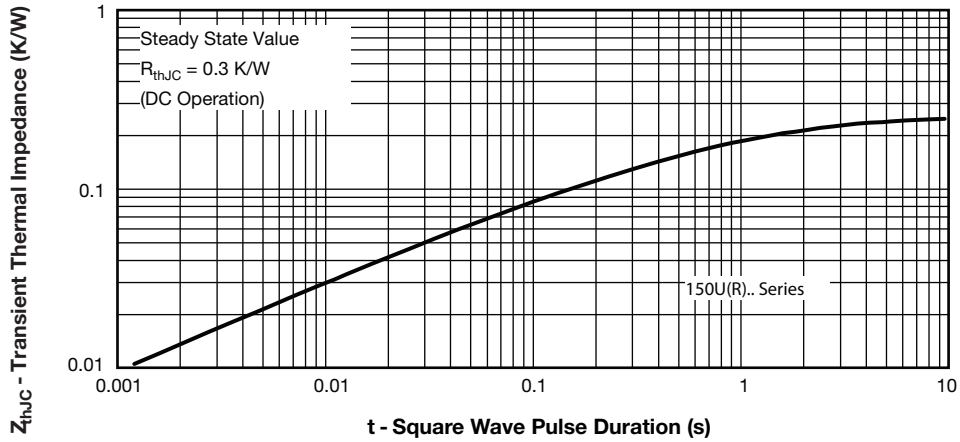


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic



**ORDERING INFORMATION TABLE**

Device code	<b>VS-</b>	<b>15</b>	<b>0</b>	<b>U</b>	<b>R</b>	<b>120</b>	<b>D</b>	<b>L</b>
	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

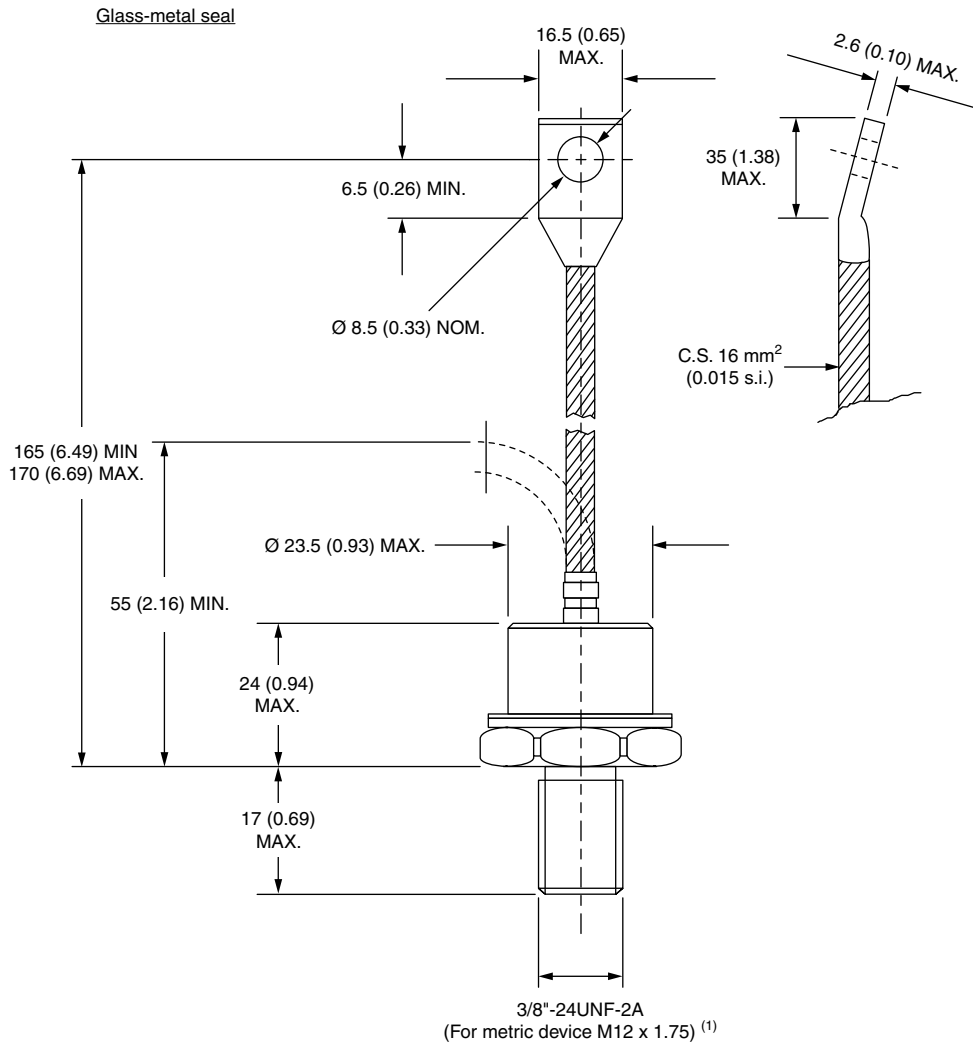
**Note**

- For metric device M12 x 1.75 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95315">www.vishay.com/doc?95315</a>

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

**DIMENSIONS** in millimeters (inches)



**Note**

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



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