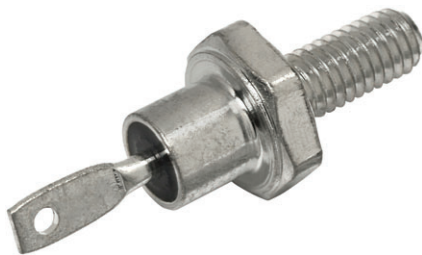


# Medium Power Silicon Rectifier Diodes, (Stud Version), 12 A



DO-4 (DO-203AA)

## FEATURES

- Voltage ratings from 50 V to 1000 V
- High surge capability
- Low thermal impedance
- High temperature rating
- Can be supplied as JAN and JAN-TX devices in accordance with MIL-S-19500/260
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## PRIMARY CHARACTERISTICS

$I_{F(AV)}$	12 A
Package	DO-4 (DO-203AA)
Circuit configuration	Single

## MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		<b>12</b>	A
	$T_C$	<b>150</b>	°C
$I_{FSM}$	50 Hz	230	A
	60 Hz	<b>240</b>	
$I^2t$	50 Hz	260	A <sup>2</sup> s
	60 Hz	240	
$T_J$		-65 to +200	°C
$V_{RRM}$	Range	<b>50 to 1000</b>	V

### Note

- JEDEC® registered values are in bold

## ELECTRICAL SPECIFICATIONS

### VOLTAGE RATINGS

TYPE NUMBER	$V_{RRM}$ , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE ( $T_C = -65\text{ °C TO }200\text{ °C}$ ) V	$V_{R(RMS)}$ , MAXIMUM RMS REVERSE VOLTAGE ( $T_C = -65\text{ °C TO }200\text{ °C}$ ) V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE ( $T_C = -65\text{ °C TO }200\text{ °C}$ ) V	$V_{RM}$ , MAXIMUM DIRECT REVERSE VOLTAGE ( $T_C = -65\text{ °C TO }200\text{ °C}$ ) V
VS-1N1199A	<b>50</b>	<b>35</b>	<b>100</b>	<b>50</b>
VS-1N1200A	<b>100</b>	<b>70</b>	<b>200</b>	<b>100</b>
VS-1N1201A	<b>150</b>	<b>105</b>	<b>300</b>	<b>150</b>
VS-1N1202A	<b>200</b>	<b>140</b>	<b>350</b>	<b>200</b>
VS-1N1203A	<b>300</b>	<b>210</b>	<b>450</b>	<b>300</b>
VS-1N1204A	<b>400</b>	<b>280</b>	<b>600</b>	<b>400</b>
VS-1N1205A	<b>500</b>	<b>350</b>	<b>700</b>	<b>500</b>
VS-1N1206A	<b>600</b>	<b>420</b>	<b>800</b>	<b>600</b>
VS-1N3670A	<b>700</b>	<b>490</b>	<b>900</b>	<b>700</b>
VS-1N3671A	<b>800</b>	<b>560</b>	<b>1000</b>	<b>800</b>
VS-1N3672A	<b>900</b>	<b>630</b>	<b>1100</b>	<b>900</b>
VS-1N3673A	<b>1000</b>	<b>700</b>	<b>1200</b>	<b>1000</b>
VS-1N3624	<b>1000</b>	<b>1200</b>	<b>1400</b>	<b>1000</b>

### Notes

- JEDEC® registered values are in bold
- Basic part number indicates cathode to case; for anode to case, add "R" to part number, e.g., 1N1199RA



FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current at case temperature	I <sub>F(AV)</sub>	180° sinusoidal conduction		12	A	
				150	°C	
Maximum peak one cycle non-repetitive surge current	I <sub>FSM</sub>	Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with rated V <sub>RRM</sub> applied	230	A	
		Half cycle 60 Hz sine wave or 5 ms rectangular pulse		240		
		Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with V <sub>RRM</sub> applied following surge = 0 V	275		
		Half cycle 60 Hz sine wave or 5 ms rectangular pulse		285		
Maximum I <sup>2</sup> t for fusing	I <sup>2</sup> t	t = 10 ms	With rated V <sub>RRM</sub> applied following surge, initial T <sub>J</sub> = 200 °C	260	A <sup>2</sup> s	
		t = 8.3 ms		240		
Maximum I <sup>2</sup> t for individual device fusing		t = 10 ms	With V <sub>RRM</sub> = 0 V following surge, initial T <sub>J</sub> = 200 °C	370		
		t = 8.3 ms		340		
Maximum I <sup>2</sup> √t for individual device fusing	I <sup>2</sup> √t <sup>(1)</sup>	t = 0.1 ms to 10 ms, V <sub>RRM</sub> = 0 V following surge		3715	A <sup>2</sup> √s	
Maximum forward voltage drop	V <sub>FM</sub>	I <sub>F(AV)</sub> = 12 A (38 A peak), T <sub>C</sub> = 25 °C		1.35	V	
Maximum average reverse current	I <sub>R(AV)</sub> <sup>(2)</sup>	Maximum rated I <sub>F(AV)</sub> and T <sub>C</sub>		V <sub>RRM</sub> = 50 V	3.0	mA
				V <sub>RRM</sub> = 100 V	2.5	
				V <sub>RRM</sub> = 150 V	2.25	
				V <sub>RRM</sub> = 200 V	2.0	
				V <sub>RRM</sub> = 300 V	1.75	
				V <sub>RRM</sub> = 400 V	1.5	
				V <sub>RRM</sub> = 500 V	1.25	
				V <sub>RRM</sub> = 600 V	1.0	
				V <sub>RRM</sub> = 700 V	0.9	
				V <sub>RRM</sub> = 800 V	0.8	
				V <sub>RRM</sub> = 900 V	0.7	
				V <sub>RRM</sub> = 1000 V	0.6	

**Notes**

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(1)  $I^2t$  for time  $t_x = I^2\sqrt{t} \times \sqrt{t_x}$

(2) Maximum peak reverse current ( $I_{RM}$ ) under same conditions  $\approx 2 \times$  rated  $I_{R(AV)}$

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum operating case and storage temperature range		T <sub>C</sub> , T <sub>Stg</sub>		-65 to 200	°C
Maximum internal thermal resistance, junction to case		R <sub>thJC</sub>	DC operation	2.0	°C/W
Thermal resistance, case to sink		R <sub>thCS</sub>	Mounting surface, smooth, flat and greased	0.5	
Mounting torque	minimum		Torque applied to nut; non-lubricated threads	1.36 (12)	N · m (lbf · in)
	maximum			1.69 (15)	
	minimum		Torque applied to nut; lubricated threads	1.07 (9.45)	
	maximum			1.30 (11.55)	
	minimum		Torque applied to device case; lubricated threads	1.17 (10.35)	
	maximum			1.43 (12.65)	
Approximate weight				7.0	g
				0.25	oz.
Case style			JEDEC®	DO-4 (DO-203AA)	

**Note**

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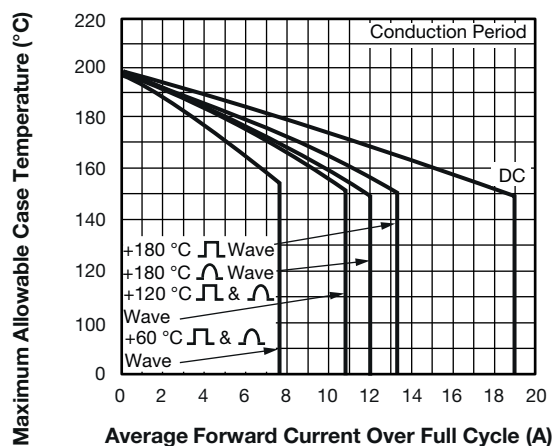


Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature

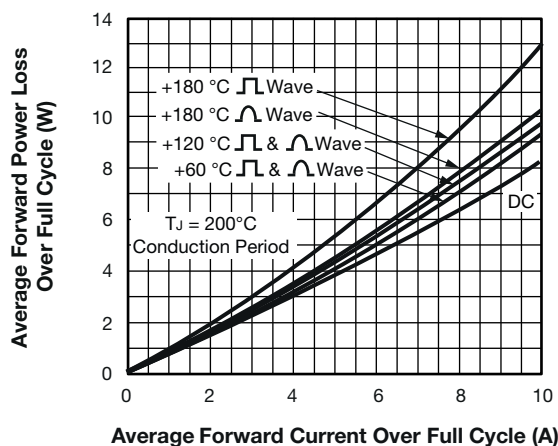


Fig. 2 - Maximum Low Level Forward Power Loss vs. Average Forward Current

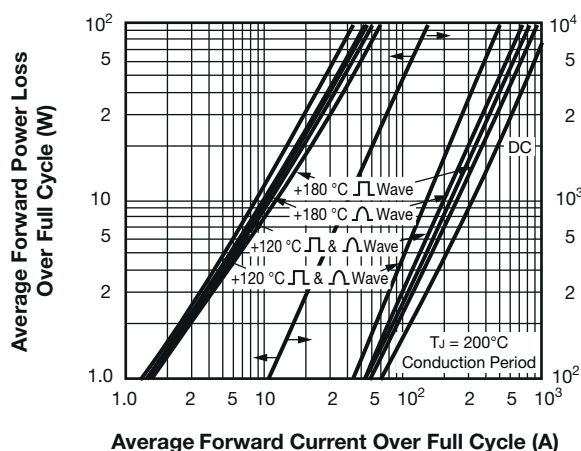


Fig. 3 - Maximum High Level Forward Power Loss vs. Average Forward Current

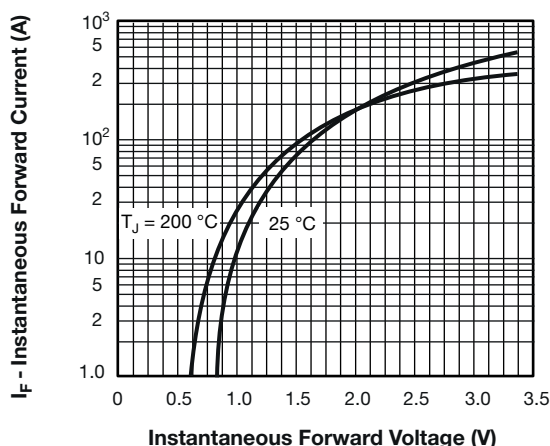


Fig. 4 - Maximum Forward Voltage vs. Forward Current

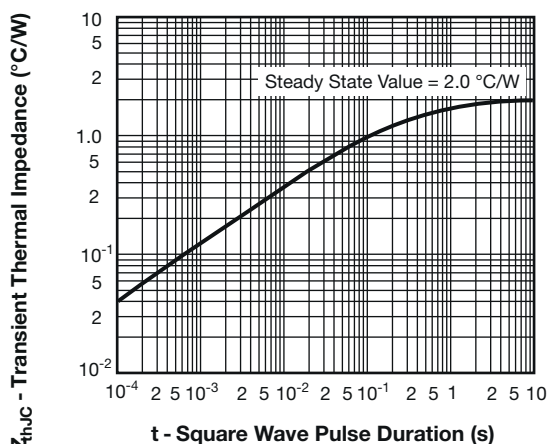


Fig. 5 - Maximum Transient Thermal Impedance, Junction to Case vs. Pulse Duration

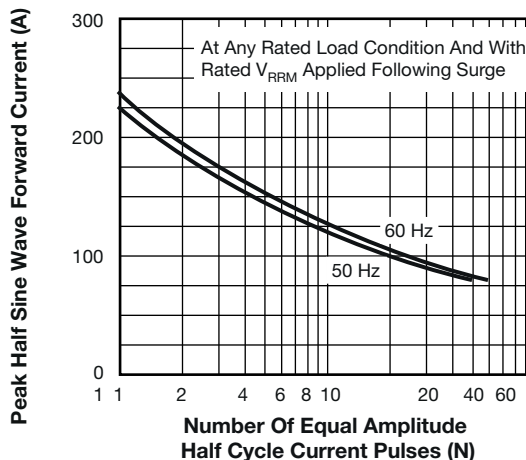


Fig. 6 - Maximum Non-Repetitive 50 Hz Surge Current vs. Number of Current Pulses

## LINKS TO RELATED DOCUMENTS

Dimensions

[www.vishay.com/doc?95311](http://www.vishay.com/doc?95311)

**DIMENSIONS** in millimeters (inches)





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