

Vishay Semiconductors

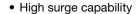
Medium Power Silicon Rectifier Diodes, (Stud Version), 12 A



PRIMARY CHARACTERISTICS		
I _{F(AV)}	12 A	
Package	DO-4 (DO-203AA)	
Circuit configuration	Single	

FEATURES

• Voltage ratings from 50 V to 1000 V





- · 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

MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	TEST CONDITIONS	VALUES	UNITS	
I _{F(AV)}		12	A	
	T _C	150	°C	
I _{FSM}	50 Hz	230	۸	
	60 Hz	240	A	
I ² t	50 Hz	260	A ² s	
	60 Hz	240	A-5	
T_J		-65 to +200	°C	
V _{RRM}	Range	50 to 1000	V	

Note

ELECTRICAL SPECIFICATIONS

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

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

[•] JEDEC® registered values are in bold



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FORWARD COM	IDUCTION					
PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current at case temperature			180° sinusoidal conduction		12	Α
		I _{F(AV)}			150	°C
Maximum peak one cycle non-repetitive		I _{ESM}	Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with rated V _{RRM} applied	230	A
			Half cycle 60 Hz sine wave or 5 ms rectangular pulse		240	
surge current			Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load	275	
			Half cycle 60 Hz sine wave or 5 ms rectangular pulse	condition and with V _{RRM} applied following surge = 0 V	285	
			t = 10 ms	With rated V _{RRM} applied	260	
Maximum I ² t for fusing		_ I ² t	t = 8.3 ms	following surge, initial T _J = 200 °C	240	A ² s
Maximum I ² t for individual device fusing			t = 10 ms	With $V_{RRM} = 0 \text{ V}$ following surge, initial $T_J = 200 \text{ °C}$	370	
			t = 8.3 ms		340	
Maximum l ² √t for individual device fusing		I ² √t ⁽¹⁾	t = 0.1 ms to 10 ms, V _{RRM} = 0 V following surge		3715	A²√s
Maximum forward voltage drop		V_{FM}	I _{F(AV)} = 12 A (38 A peak), T _C = 25 °C		1.35	V
	$V_{RRM} = 50 \text{ V}$				3.0	
V _{RRM} = 100 V					2.5	
	V _{RRM} = 150 V				2.25]
$\frac{V_{RRM} = 200 \text{ V}}{V_{RRM} = 300 \text{ V}}$					2.0	
					1.75	
reverse current	$V_{RRM} = 400 \text{ V}$	I _{R(AV)} (2)	(2) Maximum rated I _{F(AV)} and T _C		1.5	mA
	$V_{RRM} = 500 \text{ V}$		waxiiiaiii tatee i _{P(AV)} and i'C		1.25	
	$V_{RRM} = 600 \text{ V}$				1.0	
	$V_{RRM} = 700 \text{ V}$				0.9	
	$V_{RRM} = 800 \text{ V}$				8.0	
	V _{RRM} = 900 V				0.7	_
V _{RRM} = 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 $\approx 2 \text{ x rated } I_{R(AV)}$

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum operating ca storage temperature ra		T _C , T _{Stg}		-65 to 200	°C
Maximum internal thermal resistance, junction to case		R _{thJC}	DC operation	2.0	°C/W
Thermal resistance, case to sink		R _{thCS}	Mounting surface, smooth, flat and greased	0.5	
	minimum		Town to applied to put you help rected threads	1.36 (12)	N · m (lbf · in)
	maximum		Torque applied to nut; non-lubricated threads	1.69 (15)	
Mounting torque	minimum		Tarana and indiana and helicated three de	1.07 (9.45)	
Mounting torque	maximum		Torque applied to nut; lubricated threads	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)		D-203AA)

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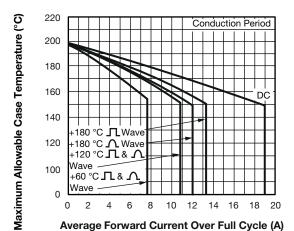


Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature

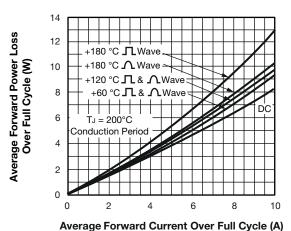
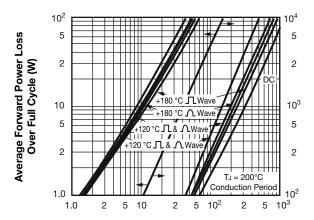


Fig. 2 - Maximum Low Level Forward Power Loss vs. Average Forward Current



Average Forward Current Over Full Cycle (A) Fig. 3 - Maximum High Level Forward Power Loss vs. Average Forward Current

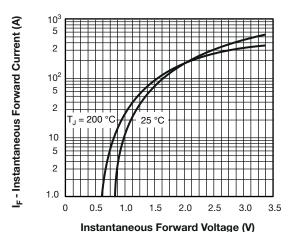


Fig. 4 - Maximum Forward Voltage vs. Forward Current

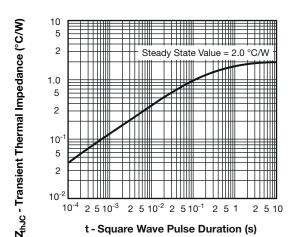
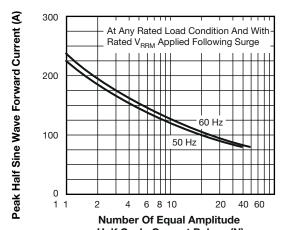


Fig. 5 - Maximum Transient Thermal Impedance, Junction to Case vs. Pulse Duration



Half Cycle Current Pulses (N) Fig. 6 - Maximum Non-Repetitive 50 Hz Surge Current vs. **Number of Current Pulses**

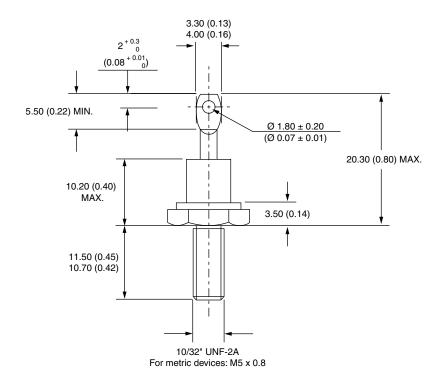
LINKS TO RELATED DOCUMENTS		
Dimensions	www.vishay.com/doc?95311	

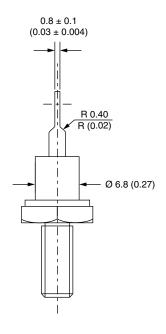


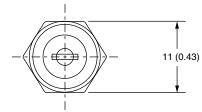
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DO-203AA (DO-4)

DIMENSIONS in millimeters (inches)









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