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Vishay Semiconductors

COMPLIANT

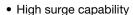
Medium Power Silicon Rectifier Diodes, (Stud Version), 12 A



PRODUCT SUMMARY				
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 <u>www.vishay.com/doc?99912</u>

MAJOR RATINGS AND CHARACTERISTICS					
PARAMETER	TEST CONDITIONS	VALUES	UNITS		
I _{F(AV)}		12	Α		
	T _C	150	°C		
I _{FSM}	50 Hz	230	^		
	60 Hz	240	Α		
l 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 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 CONDUCTION						
PARAMETER		SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current		I _{F(AV)}	180° sinusoidal conduction		12	Α
at case temperature	at case temperature				150	°C
			Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with rated V _{RRM} applied	230	- A
Maximum peak one cycle non-repetitive surge current		I _{FSM}	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 _{RRM} applied following surge = 0 V	275	
			Half cycle 60 Hz sine wave or 5 ms rectangular pulse		285	
			t = 10 ms	With rated V _{RRM} applied	260	
Maximum I ² t for fusing		_ l ² t	t = 8.3 ms	following surge, initial T _J = 200 °C	240	A ² s
Maximum I ² t for individual			t = 10 ms	With $V_{RRM} = 0 \text{ V}$ following surge, initial $T_J = 200 \text{ °C}$	370	
device fusing			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 V		Maximum rated I _{F(AV)} and T _C		3.0	mA
	V _{RRM} = 100 V				2.5	
	V _{RRM} = 150 V				2.25	
	V _{RRM} = 200 V	I _{R(AV)} ⁽²⁾			2.0	
Maximum average reverse current	V _{RRM} = 300 V				1.75	
	V _{RRM} = 400 V				1.5	
	V _{RRM} = 500 V				1.25	
	V _{RRM} = 600 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

- JEDEC registered values are in bold
- (1) I^2t for time $t_x = I^2\sqrt{t} \ x \ \sqrt{t_x}$
- (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		Torque applied to nut; non-lubricated threads	1.36 (12)	N · m (lbf · in)
	maximum		Torque applied to flut, flori-lubricated trireads	1.69 (15)	
Mounting torque	minimum		Taurus a serella dita sereti lubricata dithuas da	1.07 (9.45)	
Mounting torque	maximum		Torque applied to nut; lubricated threads	1.30 (11.55)	
	minimum		Toward and the device and the bright device and	1.17 (10.35)	
	maximum		Torque applied to device case; lubricated threads	1.43 (12.65)	
Approximate weight				7.0	g
				0.25	OZ.
Case style JEDEC DO-4 (D		D-203AA)			

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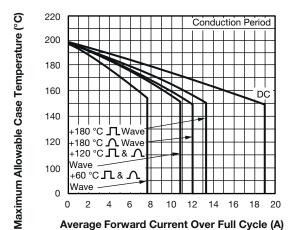


Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature

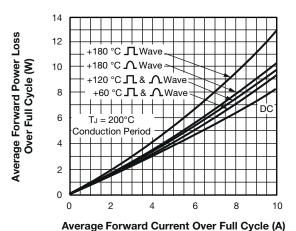


Fig. 2 - Maximum Low Level Forward Power Loss vs. Average Forward Current

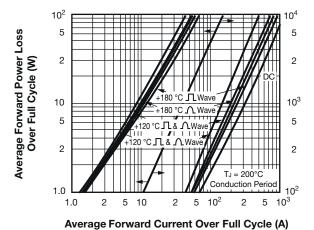


Fig. 3 - Maximum High Level Forward Power Loss vs. Average Forward Current

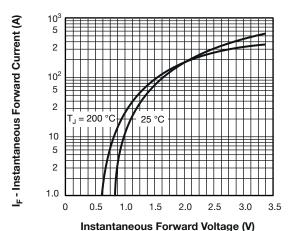


Fig. 4 - Maximum Forward Voltage vs. Forward Current

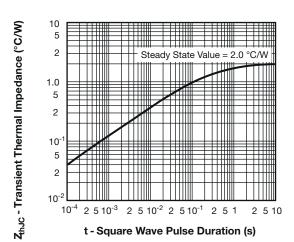


Fig. 5 - Maximum Transient Thermal Impedance, Junction to Case vs. Pulse Duration

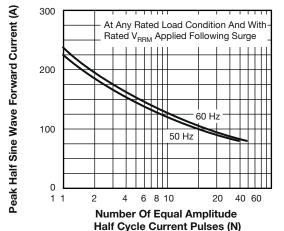


Fig. 6 - Maximum Non-Repetitive 50 Hz Surge Current vs. Number of Current Pulses

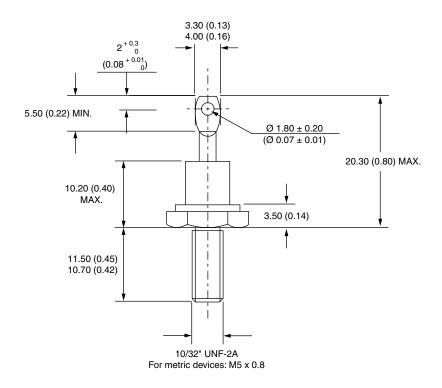
LINKS TO RELATED DOCUMENTS			
Dimensions	www.vishay.com/doc?95311		

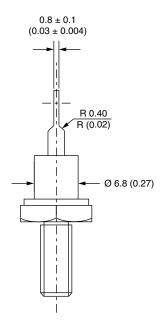


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DO-203AA (DO-4)

DIMENSIONS in millimeters (inches)







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