Medium Power
Silicon Rectifier Diodes, 12 A

DO-203AA (DO-4)

FEATURES

- Voltage ratings from 50 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
- RoHS compliant

RoHS COMPLIANT

PRODUCT SUMMARY	
$I_{F(AV)}$	12 A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		12 (1)	A
	T_C	150 (1)	°C
I_{FSM}	50 Hz	230	A
	60 Hz	240 (1)	
I^2t	50 Hz	260	A^2s
	60 Hz	240	
T_C		- 65 to 200	°C
V_{RRM}	Range	50 to 1000 (1)	V

Note

(1) JEDEC registered values

ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER (2)	V_{RRM}, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	$V_{R(RMS)}$, MAXIMUM RMS REVERSE VOLTAGE V	V_{RSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	V_{RM}, MAXIMUM DIRECT REVERSE VOLTAGE V
	T_C = - 65 °C TO 200 °C	T_C = - 65 °C TO 200 °C	T_C = - 65 °C TO 200 °C	T_C = - 65 °C TO 200 °C
1N1199A	50 (1)	35 (1)	100 (1)	50 (1)
1N1200A	100 (1)	70 (1)	200 (1)	100 (1)
1N1201A	150 (1)	105 (1)	300 (1)	150 (1)
1N1202A	200 (1)	140 (1)	350 (1)	200 (1)
1N1203A	300 (1)	210 (1)	450 (1)	300 (1)
1N1204A	400 (1)	280 (1)	600 (1)	400 (1)
1N1205A	500 (1)	350 (1)	700 (1)	500 (1)
1N1206A	600 (1)	420 (1)	800 (1)	600 (1)
1N3670A	700 (1)	490	900 (1)	700 (1)
1N3671A	800 (1)	560	1000 (1)	800 (1)
1N3672A	900 (1)	630	1100 (1)	900 (1)
1N3673A	1000 (1)	700	1200 (1)	1000 (1)

Notes

(1) JEDEC registered values

(2) 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	$I_{F(AV)}$	180° sinusoidal conduction		12 (1)	A
				150 (1)	°C
Maximum peak one cycle non-repetitive surge current	I_{FSM}	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 (1)	
		Half cycle 50 Hz sine wave or 6 ms rectangular pulse	Following any rated load condition and with V_{RRM} applied following surge = 0	275	
		Half cycle 60 Hz sine wave or 5 ms rectangular pulse		285	
Maximum I^2t for fusing	I^2t	t = 10 ms	With rated V_{RRM} applied following surge, initial T_J = 200 °C	260	A^2s
		t = 8.3 ms		240	
Maximum I^2t for individual device fusing		t = 10 ms	With V_{RRM} = 0 following surge, initial T_J = 200 °C	370	
		t = 8.3 ms		340	
Maximum $I^2\sqrt{t}$ for individual device fusing	$I^2\sqrt{t}$ (2)	t = 0.1 to 10 ms, V_{RRM} = 0 following surge		3715	$A^2\sqrt{s}$
Maximum forward voltage drop	V_{FM}	$I_{F(AV)}$ = 12 A (38 A peak), T_C = 25 °C		1.35 (1)	V
Maximum average reverse current	V_{RRM} = 50	$I_{R(AV)}$ (3)	Maximum rated $I_{F(AV)}$ and T_C	3.0 (1)	mA
	V_{RRM} = 100			2.5 (1)	
	V_{RRM} = 150			2.25 (1)	
	V_{RRM} = 200			2.0 (1)	
	V_{RRM} = 300			1.75 (1)	
	V_{RRM} = 400			1.5 (1)	
	V_{RRM} = 500			1.25 (1)	
	V_{RRM} = 600			1.0 (1)	
	V_{RRM} = 700			0.9 (1)	
	V_{RRM} = 800			0.8 (1)	
	V_{RRM} = 900			0.7 (1)	
	V_{RRM} = 1000			0.6 (1)	

Notes

(1) JEDEC registered values

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

(3) Maximum peak reverse current (I_{RM}) under same conditions ≈ 2 x rated $I_{R(AV)}$

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER		**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum operating case and storage temperature range		T_C, T_{Stg}		- 65 to 200 (1)	°C
Maximum internal thermal resistance, junction to case		R_{thJC}	DC operation	2.0 (1)	°C/W
Thermal resistance, case to sink		R_{thCS}	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-203AA (DO-4)	

Note
(1) JEDEC registered values

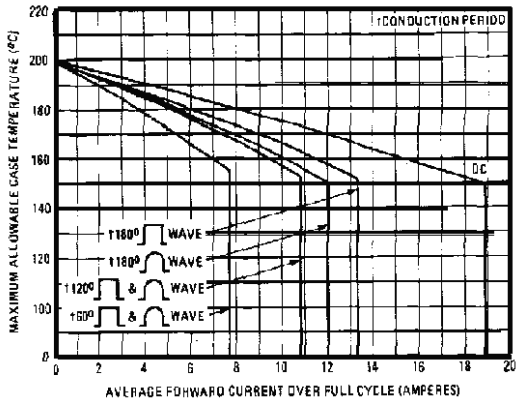

Fig. 1 - Average Forward Current vs.
Maximum Allowable Case Temperature

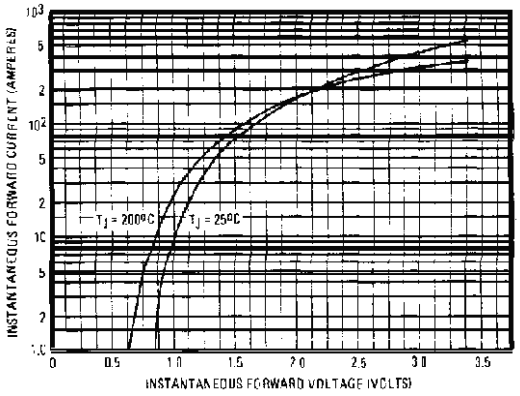

Fig. 4 - Maximum Forward Voltage vs. Forward Current

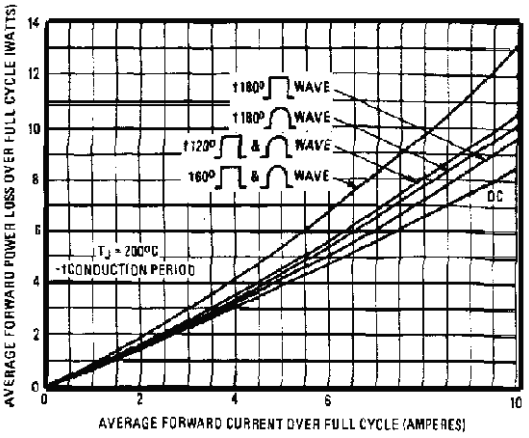

Fig. 2 - Maximum Low Level Forward Power Loss vs.
Average Forward Current

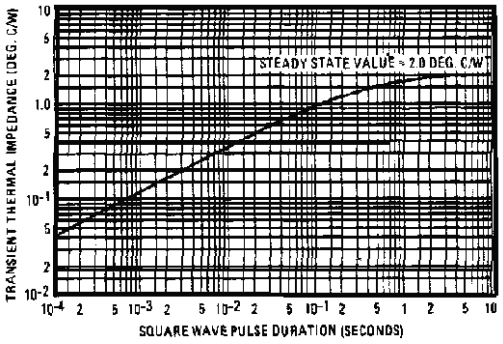

Fig. 5 - Maximum Transient Thermal Impedance,
Junction to Case vs. Pulse Duration

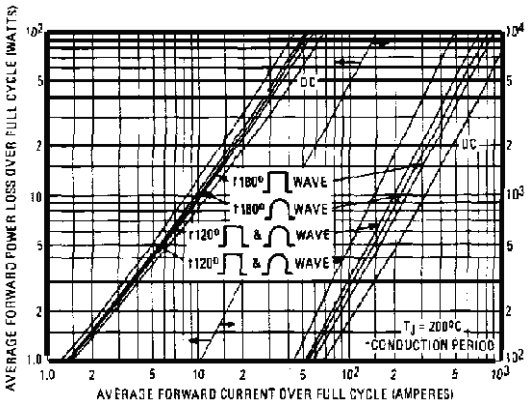

Fig. 3 - Maximum High Level Forward Power Loss vs.
Average Forward Current

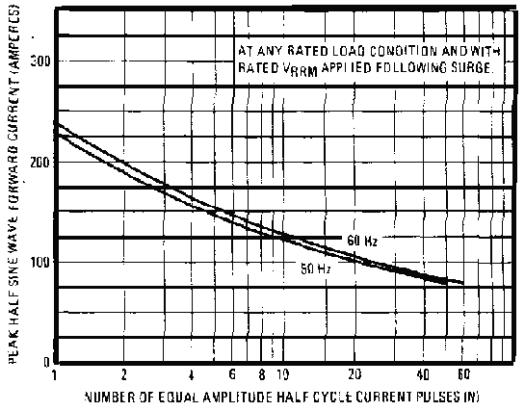

Fig. 6 - Maximum Non-Repetitive 50 Hz Surge Current vs.
Number of Current Pulses

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

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