

INTERNATIONAL RECTIFIER

1N1199A, 1N3670A SERIES

12 Amp Medium Power Silicon Rectifier Diodes

Major Ratings and Characteristics

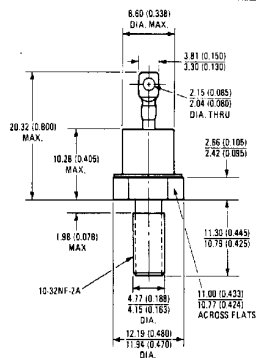
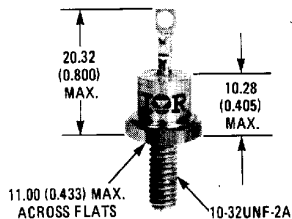
Series	1N1199A 1N3670A	Units
$I_F(AV)$	12*	A
@ MAX. T_C	150*	°C
I_{FSM}		A
@ 50 Hz	230	
@ 60 Hz	240*	
I^2_t		A ² s
@ 50 Hz	260	
@ 60 Hz	240	
T_C	-65°C* to 200°C	°C
V_{RRM} range	50* - 1000*	V

* JEDEC registered value.

Description/Features

- Voltage ratings from 50 to 1,000 volts
- 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

CASE STYLE AND DIMENSIONS



Conforms to JEDEC Outline DO-203AA (DO-4)

All Dimensions in Millimeters and (Inches)

VOLTAGE RATINGS

Part Number ①	V_{RRM} - Max. Repetitive Peak Reverse Voltage (V) $T_C = -65^\circ\text{C to } 200^\circ\text{C}$	$V_{R(RMS)}$ - Max. RMS Reverse Voltage (V) $T_C = -65^\circ\text{C to } 200^\circ\text{C}$	V_{RSM} - Max. Non-Repetitive Peak Reverse Voltage (V) $T_C = 0^\circ\text{C to } 200^\circ\text{C}$	V_R - Max. Direct Reverse Voltage (V) $T_C = -65^\circ\text{C to } 200^\circ\text{C}$
1N1199A	50*	35*	100*	50*
1N1200A	100*	70*	200*	100*
1N1201A	150*	105*	300*	150*
1N1202A	200*	140*	350*	200*
1N1203A	300*	210*	450*	300*
1N1204A	400*	280*	600*	400*
1N1205A	500*	350*	700*	500*
1N1206A	600*	420*	800*	600*
1N3670A	700*	490*	900*	700*
1N3671A	800*	560*	1000*	800*
1N3672A	900*	630*	1100*	900*
1N3673A	1000*	700*	1200*	1000*

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, e.g., 1N1199RA.

ELECTRICAL SPECIFICATIONS

		1N1199A 1N3670A	Units	Conditions
$I_{F(AV)}$	Max. average forward current @ T_C max. =	12* 150*	A °C	180° sinusoidal conduction
I_{FSM}	Max. peak one-cycle non-repetitive surge current	230 240* 275 285	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with rated V_{RRM} reapplied Half cycle 60 Hz sine wave or 5 ms rectangular pulse Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with V_{RRM} applied following surge = 0 Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I^2t	Max. I^2t for fusing Max. I^2t for individual device fusing	260 240 370 340	A^2s	$t = 10\text{ms}$ With rated V_{RRM} applied following surge, initial $T_J = 200^\circ\text{C}$ $t = 6.3\text{ms}$ $t = 10\text{ms}$ With $V_{RRM} = 0$ following surge, initial $T_J = 200^\circ\text{C}$ $t = 6.3\text{ms}$
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for individual device fusing ①	3715	$A^2\sqrt{s}$	$t = 0.1$ to 10ms , $V_{RRM} = 0$ following surge
V_{FM}	Max. peak forward voltage	1.35*	V	$I_{F(AV)} = 12\text{A}$ (38A peak), $T_C = 25^\circ\text{C}$
$I_{R(AV)}$	Max. average reverse current $V_{RRM} = 50$ = 100 = 150 = 200 = 300	3.0* 2.5* 2.25* 2.0* 1.75*	mA	Max. rated $I_{F(AV)}$ and T_C Note: Max. peak reverse current, I_{RM} , under same conditions $\approx 2 \times$ rated $I_{R(AV)}$.

*JEDEC registered value.

① I^2t for time $t_x = I^2\sqrt{t} \div \sqrt{t_x}$

ELECTRICAL SPECIFICATIONS (Continued)

	1N1199A 1N3670A	Units	Conditions
$I_{R(AV)}$ Max. average reverse current (Continued) $V_{RRM} = 400$ = 500 = 600 = 700 = 800 = 900 = 1000	1.5* 1.25* 1.0* 0.9* 0.8* 0.7* 0.6*	mA	Max. rated $I_{F(AV)}$ and T_C Note: Max. peak reverse current, I_{RM} , under same conditions $\approx 2 \times$ rated $I_{R(AV)}$.

THERMAL-MECHANICAL SPECIFICATIONS

T_C	Max. operating case temperature range	-65* to 200*	°C	
T_{stg}	Max. storage temperature range	-65* to 200*	°C	
R_{thJC}	Max. internal thermal resistance, junction-to-case	2.0*	deg. C/W	DC operation
R_{thCS}	Thermal resistance, case-to-sink	0.5	deg. C/W	Mounting surface flat, smooth, and greased.
T	Mounting torque	Min.	N · m (lbf · in)	Torque applied to nut. Non-lubricated threads.
		Max.		
		Min.		Torque applied to nut. Lubricated threads.
		Max.		
		Min.		Torque applied to device case. Lubricated threads.
		Max.		
wt	Approximate weight	7.0 (0.25)	g (oz.)	
	Case style	DO-203AA (DO-4)		JEDEC

* JEDEC registered value.

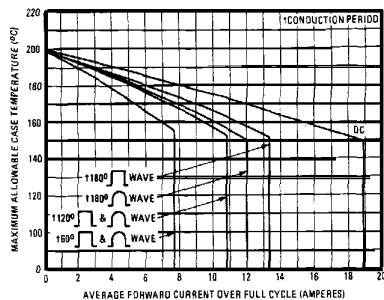


Fig. 1 - Average Forward Current Vs. Maximum Allowable Case Temperature

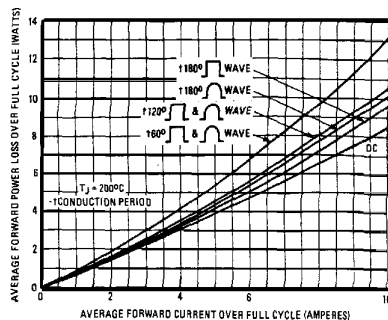


Fig. 2 - Maximum Low Level Forward Power Loss Vs. Average Forward Current

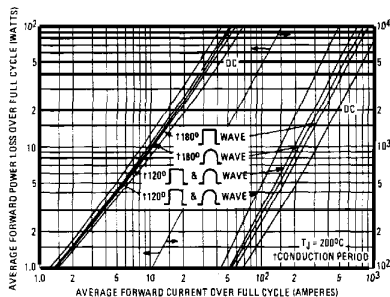


Fig. 3 - Maximum High Level Forward Power Loss Vs. Average Forward Current

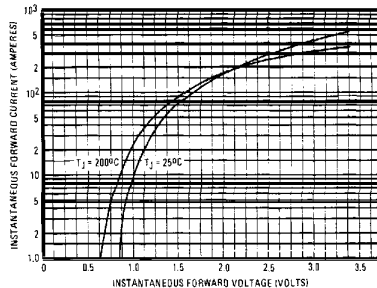


Fig. 4 - Maximum Forward Voltage Vs. Forward Current

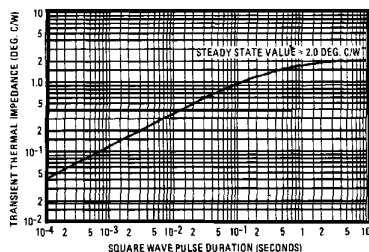


Fig. 5 - Maximum Transient Thermal Impedance, Junction-to-Case Vs. Pulse Duration

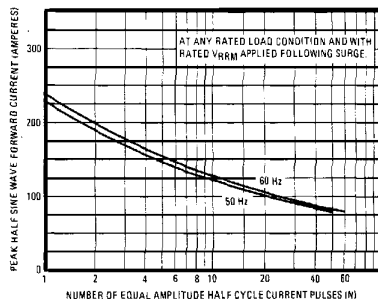


Fig. 6 - Maximum Non-Repulsive 50 Hz Surge Current Vs. Number of Current Pulses