

INTERNATIONAL RECTIFIER

1N4816, 1N5052, 10D, 20D SERIES

1.5 and 2.0 Amp Molded Silicon Rectifier Diodes

Major Ratings and Characteristics

	10D	20D	1N4816	1N5052	Units
$I_F(AV)$	1.5	2.0	1.5*	1.5	A
@ Max. T_A	40	100†	40*	40*	°C
I_{FSM}					
@ 50 Hz	48	48	48	48	A
@ 60 Hz	50	50	50*	50*	
$I^2\sqrt{t}$	161.4	161.4	161.4	161.4	$A^2\sqrt{s}$
T_J	-65 to 170*				°C
VRRM Range	50 – 1000*				V

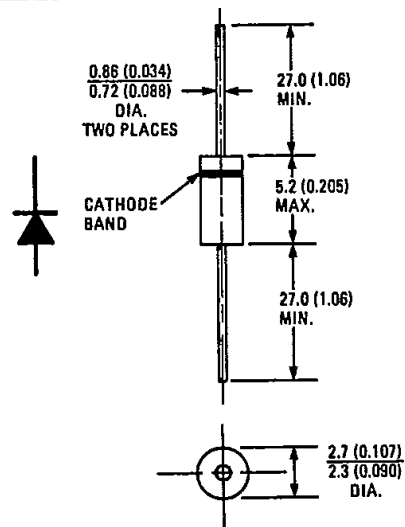
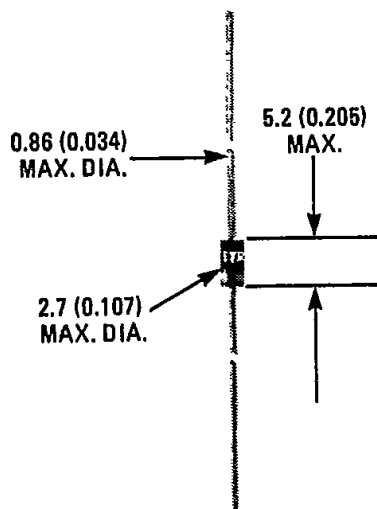
†Maximum lead temperature, T_L .

*JEDEC registered value.

Description/Features

- Economical miniature case
- High surge ratings
- Molded epoxy DO-204AL case style.

CASE STYLE AND DIMENSIONS



Conforms to JEDEC Case Style DO-204AL (DO-41)
Dimensions in Millimeters and (Inches)

VOLTAGE RATINGS

Part Numbers	V _{RRM} — Max. Repetitive Peak Reverse Voltage (V)	V _{RSM} — Max. Non-Repetitive Peak Reverse Voltage (V)	V _{R(RMS)} — Max. RMS Reverse Voltage (V)	V _R — Max. DC Blocking Voltage (V)	Surge Resistor ⁽¹⁾ (Ohms)	
	T = -65 to 175°C ⁽¹⁾	T = -65 to 175°C ⁽¹⁾	T = -65 to 175°C ⁽¹⁾	T = -65 to 165°C ⁽¹⁾	Min.	Typ.
10D05, 20D05, 1N4816	50*	100*	35	50*	4.7	7.5
10D1, 20D1, 1N4817	100*	200*	70	100*	4.7	7.5
10D2, 20D2, 1N4818	200*	300*	140	200*	4.7	7.5
— 1N4819	300	400	210	300	4.7	7.5
10D4, 20D4, 1N4820	400*	525*	280	400*	4.7	7.5
— 1N4821	500	650	350	500	6.2	10
10D6, 20D6, 1N4822	600*	800*	420	600*	7.5	12
— 1N5052	700*	900*	490	700*	—	—
10D8, 20D8, 1N5053	800*	1000*	560	800*	10	15
10D10, 20D10, 1N5054	1000*	1200*	700	1000*	12	20

ELECTRICAL SPECIFICATIONS

	10D	20D	1N4816	1N5052	Units	Conditions
I _{F(AV)} Max. average forward current @ Max. T ⁽¹⁾	1.5	2.0	1.5*	1.5*	A	180° sinusoidal conduction
	40	100	40*	40*	°C	20D: Double side cooled.
I _{FSM} Max. peak one cycle, non-repetitive surge current	48	48	48	48	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse. Following any rated load condition and with rated V _{RRM} reapplied.
	50	50	50*	50*	A	Half cycle 60 Hz sine wave or 5 ms rectangular pulse.
I ² √t Max. I ² √t for fusing ⁽⁴⁾	161.4	161.4	161.4	161.4	A ² √s	t = 0.1 to 10 ms with V _{RRM} following surge = rated V _{RRM} .
V _{FM} Max. peak forward voltage	0.95	—	—	—	V	T _A = 25°C, I _{FM} = 1A
	1.30	—	1.30*	1.30*	V	T _A = 40°C, I _{F(AV)} = 1.5A (4.71A pk)
	—	1.30	—	—	V	T _A = 25°C, I _{F(AV)} = 2.0A (6.28A pk)
I _R Max. dc reverse current	5 ⁽³⁾	5 ⁽³⁾	5	5	μA	T = 25°C
	—	—	500*	500*	μA	T _A = 170°C V _R = Rated V _R
I _{R(AV)} Max. average reverse current	250	250	250*	250*	μA	V _{RRM} = Rated V _{RRM} 20D: T _L = 100°C, I _{F(AV)} = 2.0A Others: T _A = 40°C, I _{F(AV)} = 1.5A

THERMAL-MECHANICAL SPECIFICATIONS

T _J	Max. operating junction temperature range	-65 to 170*	°C	
T _{stg}	Max. storage temperature range	-65 to 175*	°C	
T _{slid}	Max. lead temperature during soldering	240*	°C	Duration, 10s max., measured 9.5 mm (0.375 in.) from device case.
wt	Approximate weight	0.33 (0.012)	g (oz)	
	Case Style	DO-204AL (DO-41)		JEDEC

⁽¹⁾ T = T_A for 10D series, 1N4816 through 1N4822 and 1N5052 through 1N5054. T = T_L for 20D series.
(T_L is measured 9.5 mm (0.375 in.) from device case.)

⁽²⁾ Value of series resistance required for capacitive loads, 10D, 1N4816, and 1N5052 series.

⁽³⁾ I_R = 10 μA for devices rated 200V or less.

⁽⁴⁾ I²t for time t_x = I²√t · √t_x.

* JEDEC registered value.

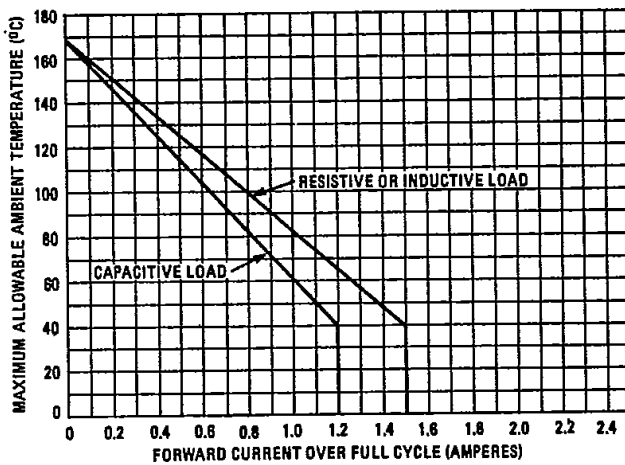


Fig. 1 - Average Forward Current Vs. Maximum Allowable Ambient Temperature, 1N4816-22, 1N5052-54 & 10D Series

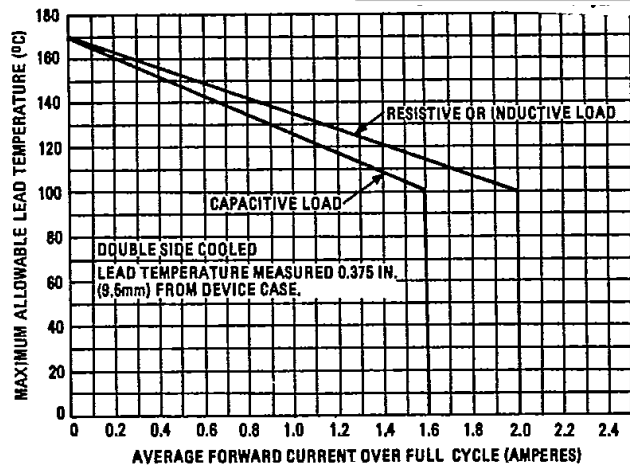


Fig. 2 - Average Forward Current Vs. Maximum Allowable Lead Temperature, 20D Series

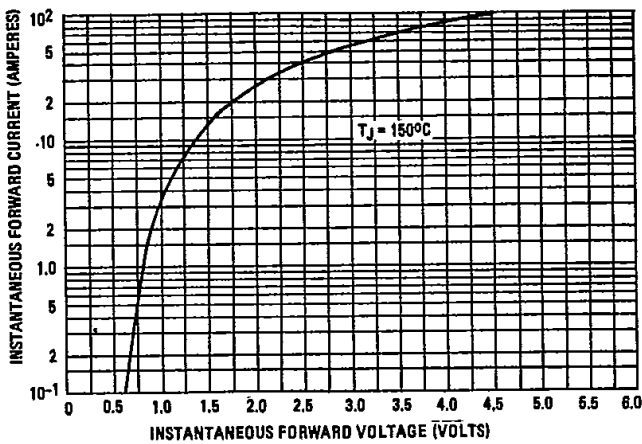


Fig. 3 - Maximum Forward Voltage Vs. Forward Current, 1N4816-22, 1N5052-54, 10D Series

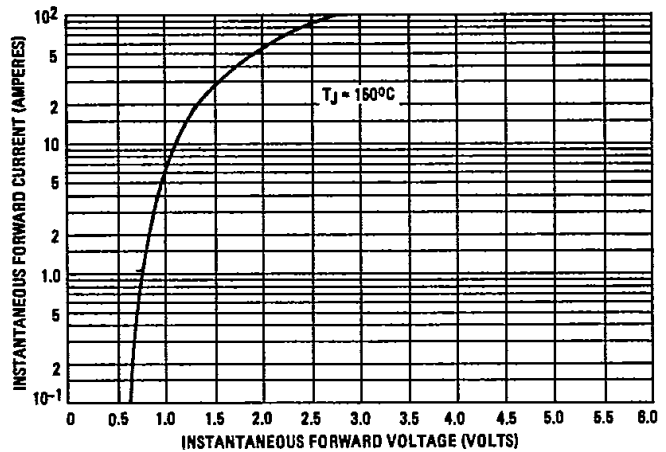


Fig. 4 - Maximum Forward Voltage Vs. Forward Current, 20D Series

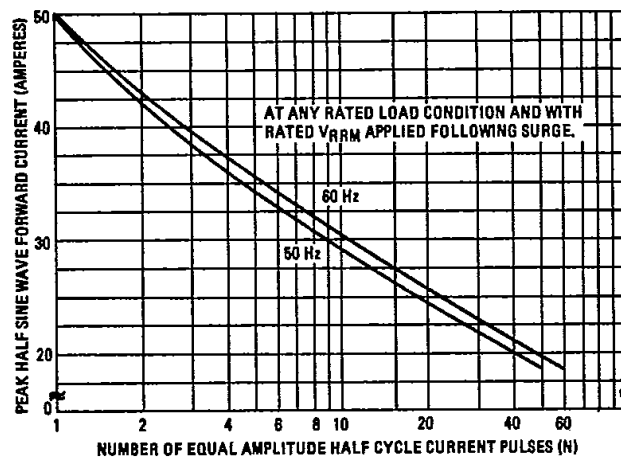


Fig. 5 - Maximum Non-Repetitive Surge Current Vs. Number of Current Pulses, All Series