

INTERNATIONAL RECTIFIER



1N4044 SERIES

275 Amp Avg Power Silicon Rectifier Diodes

Major Ratings and Characteristics

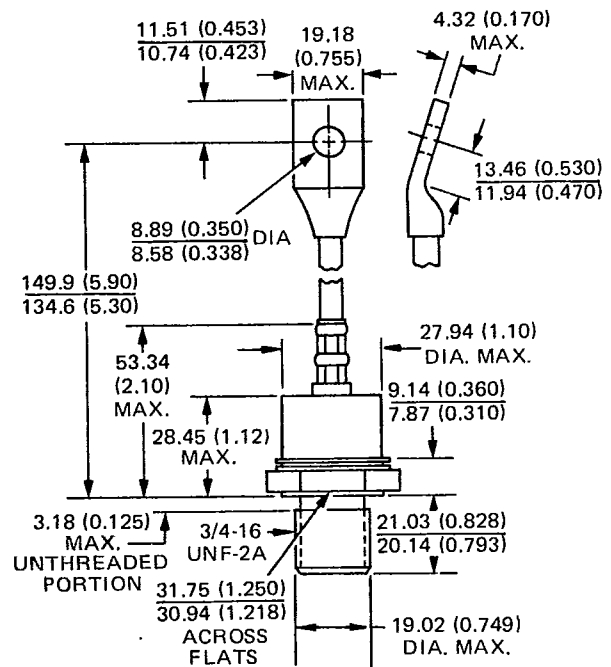
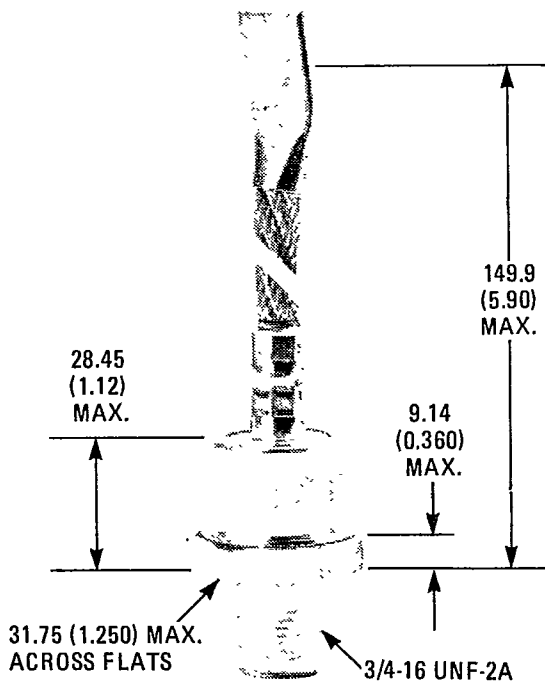
	1N4044	Units
$I_F(AV)$	275*	A
@ T_C	120	°C
I_{FSM}	@ 50 Hz	4800
	@ 60 Hz	5000*
I^2_t	@ 50 Hz	115 000
	@ 60 Hz	105 000
$I^2\sqrt{t}$	1,600,000	$A^2\sqrt{s}$
V_{RRM} Range	50-1000	V

*JEDEC registered values

Description and Features

- Peak reverse voltage up to 1000V
- Popular series for rough service
- For many AC-to-DC circuit applications

CASE STYLE AND DIMENSIONS



Conforms to JEDEC Outline DO-205AB (DO-9) (B13)
All Dimensions in (Millimeters) and (Inches)

VOLTAGE RATINGS

Part Number ^①	V _{RRM} — Max. Repetitive Peak Reverse Voltage (V)	V _{RSM} — Max. Non-repetitive Peak Reverse Voltage (V)	V _R — Max. Direct Reverse Voltage (V)	I _{R(AV)} — Max. Average Reverse Current @ Max. Rated I _{F(AV)} and V _{RRM} , T _C = 120°C (1 Phase Operation) (mA)
DO-205AB (DO-9) (B-13)	T _C = -65 to 190°C	T _C = 25 to 190°C	T _C = -65 to 190°C	
1N4044	50*	100*	50*	15*
1N4045	100*	200*	100*	15*
1N4046	150*	250*	150*	15*
1N4047	200*	300*	200*	15*
1N4048	250*	350*	250*	15*
1N4049	300*	400*	300*	15*
1N4050	400*	525*	400*	15*
1N4051	500*	650*	500*	15*
1N4052	600*	800*	600*	15*
1N4053	700*	925*	700*	15*
1N4054	800*	1050*	800*	15*
1N4055	900*	1175*	900*	15*
1N4056	1000*	1300*	1000*	15*

① Basic part number indicates cathode-to-case. For anode-to-case, add "R" to part number, e.g. 1N4053R.

ELECTRICAL SPECIFICATIONS

	1N4044	Units	Conditions
I _{F(AV)} Max. average forward current	275*	A	180° sinusoidal conduction Max. T _C = 120°C
I _{FSM} Max. peak one-cycle non-repetitive surge current	4800	A	Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with rated V _{RRM} applied
	5000*		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
	5700		Half cycle 50 Hz sine wave or 6 ms rectangular pulse Following any rated load condition and with V _{RRM} applied following surge = 0
	5950		Half cycle 60 Hz sine wave or 5 ms rectangular pulse
I ² t Max. I ² t for fusing	115,000	A ² s	t = 10 ms With rated V _{RRM} applied following surge, initial T _J
	105,000		t = 8.3 ms
	160,000		t = 10 ms With V _{RRM} = 0 following surge, initial T _J
	145,000		t = 8.3 ms
I ² t Max. I ² t for individual device fusing ^②	1,600,000	A ² s	t = 0.1 to 10 ms, V _{RRM} = 0 following surge
V _{FM} Max. peak forward voltage	1.35*	V	I _{F(AV)} = 275A (864A peak), T _C = 180°C

THERMAL-MECHANICAL SPECIFICATIONS

T _C Max. operating case temperature range	-65 to 190*	°C	
T _{stg} Max. storage temperature range	-65 to 190	°C	
R _{thJC} Max. internal thermal resistance, junction-to-case	0.18	deg C/W	DC operation
R _{thCS} Thermal resistance, case-to-sink	0.08	deg C/W	Mounting surface flat, smooth, and greased.
T Mounting torque	31.1–36.7 (275–325)	Nm (lbf-in)	
wt Approximate weight	213 (7.5)	g (oz)	
Case style	DO-205AB (DO-9)		JEDEC

*JEDEC registered values.

② I²t for time t_x = I² t_x

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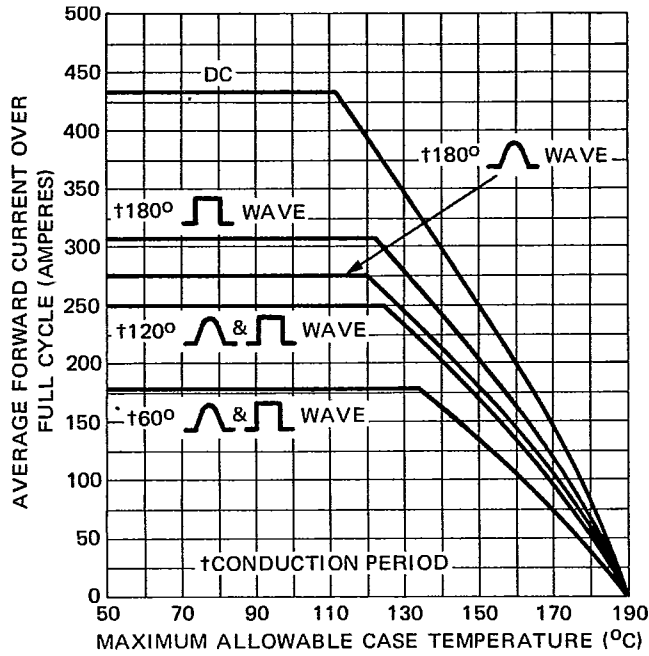


Fig. 1 — Average Forward Current Vs. Case Temperature

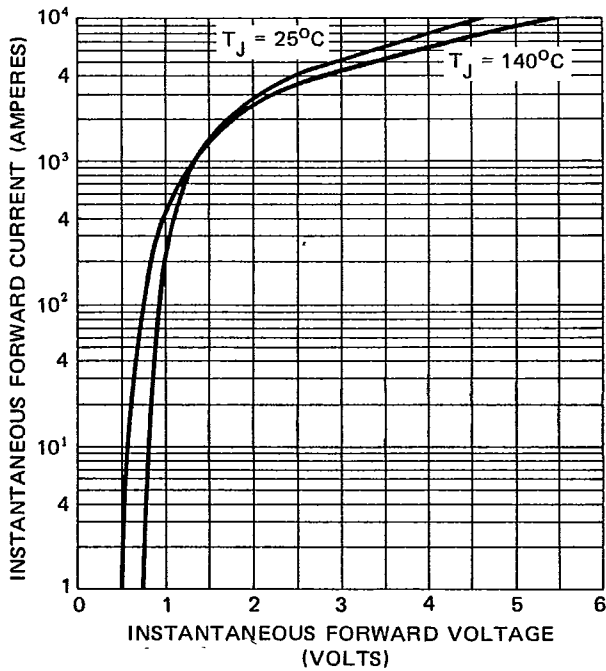


Fig. 2 — Maximum Forward Voltage Vs. Forward Current

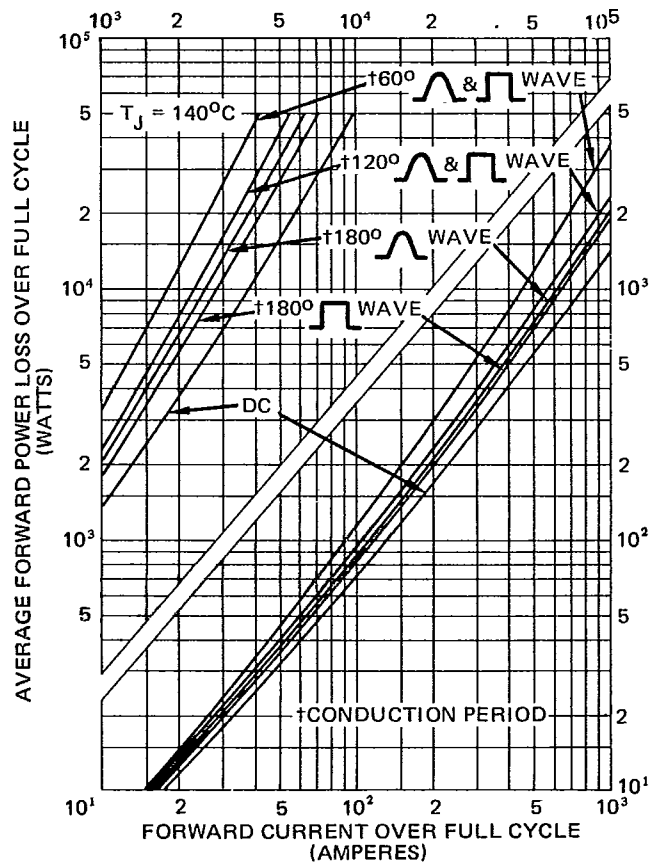


Fig. 3 — Maximum Forward Power Loss Vs. Forward Current

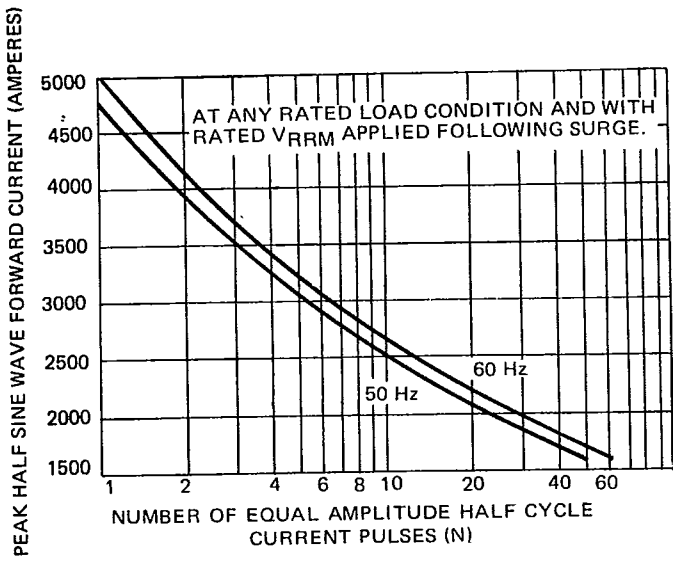


Fig. 4 — Maximum Non-Repetitive Surge Current vs. Number of Current Pulses

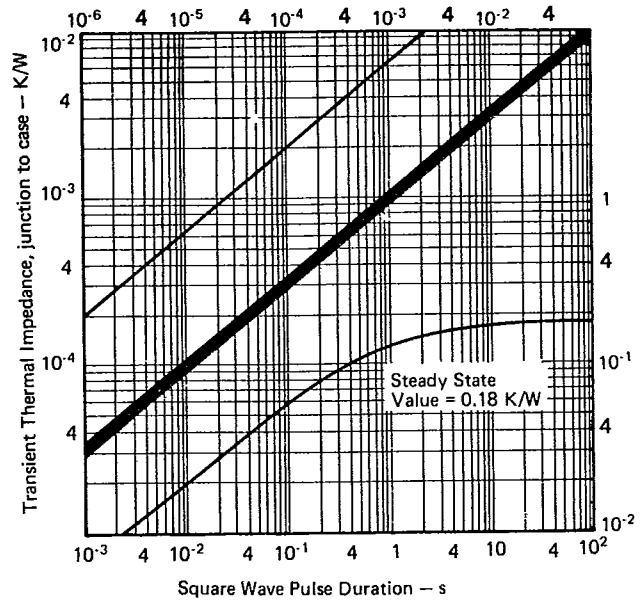


Fig. 5 — Maximum Transient Thermal Impedance, Junction-to-Case vs. Pulse Duration