

**RF Power Transistors**

**2N6104  
 2N6105**

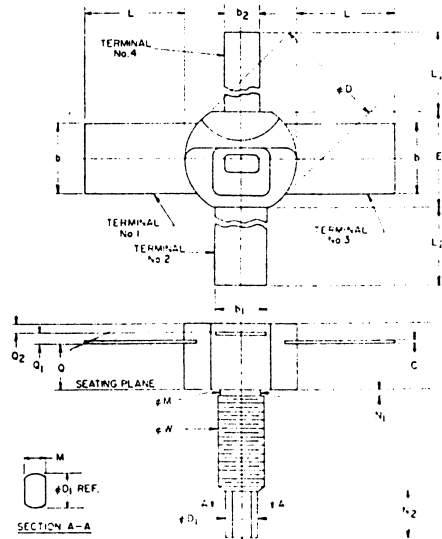
**MAXIMUM RATINGS, Absolute-Maximum Values:**

* COLLECTOR-TO-EMITTER VOLTAGE:			
With base open .....	$V_{CEO}$	30	V
* COLLECTOR-TO-BASE VOLTAGE .....	$V_{CBO}$	65	V
* EMITTER-TO-BASE VOLTAGE .....	$V_{EBO}$	4	V
* CONTINUOUS COLLECTOR CURRENT .....	$I_C$	4.5	A
* TRANSISTOR DISSIPATION .....	$P_T$		
At case temperatures up to 75° C .....		36	W
At case temperatures above 75° C .....		Derate linearly at 0.288	W/°C
* TEMPERATURE RANGE:			
Storage & Operating (Junction) .....		- 65 to +200	°C
* CASE TEMPERATURE (During soldering):			
For 10 s max. ....		230	°C

\* In accordance with JEDEC registration data format JS-6 RDF-3/JS-9 RDF-7.

**Dimensional Outline**

**TO-216AA**

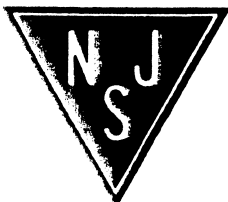


SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.150	0.230	3.81	5.84	-
b	0.195	0.205	4.953	5.207	-
b1	0.135	0.145	3.429	3.683	-
b2	0.095	0.105	2.413	2.667	-
C	0.004	0.010	0.102	0.254	3
D	0.305	0.320	7.75	8.12	5
D1	0.110	0.130	2.80	3.30	1
E	0.275	0.300	6.99	7.62	5
L	0.265	0.290	6.74	7.36	-
L2	0.455	0.510	11.56	12.95	-
M	0.053	0.064	1.35	1.62	-
M	0.120	0.163	3.05	4.14	-
N	0.425	0.470	10.80	11.93	-
N1	-	0.078	-	1.98	4
N2	0.110	0.150	2.80	3.81	-
O	0.120	0.170	3.05	4.31	-
O1	0.025	0.045	0.64	1.14	-
O2	-	-	-	-	5
W	-	-	-	-	2

MILLIMETER DIMENSIONS ARE DERIVED FROM ORIGINAL INCH DIMENSIONS

**NOTES**

- 0.053 0.064 INCH (1.35 1.62 mm) WRENCH FLAT
- PITCH DIA OF 8-32 UNC-2A COATED THREADS REF UNITED SCREW THREADS AND B1 1 1960; THE APPLIED TORQUE SHOULD NOT EXCEED 5 IN LBS CLAMPING FORCES MUST BE APPLIED ONLY TO THE FLAT SURFACES OF THE STUD
- TYPICAL FOR ALL LEADS
- LENGTH OF INCOMPLETE OR UNDERCUT THREADS OF c/w
- BODY CONTOUR OPTIONAL WITHIN O2, D AND E.



**ELECTRICAL CHARACTERISTICS, at Case Temperature ( $T_C$ ) = 25°C unless otherwise specified**  
**STATIC**

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS		UNITS
		DC Voltage V		DC Current mA		MIN.	MAX.	
		V <sub>CE</sub>	V <sub>BE</sub>	I <sub>E</sub>	I <sub>C</sub>			
Collector-to-Emitter Cutoff Current: Base connected to emitter, $T_C=55^\circ\text{C}$	I <sub>CES</sub>	30	0			—	10	mA
Collector-to-Emitter Breakdown Voltage: With base connected to emitter	V <sub>(BR)CES</sub>		0		200 <sup>a</sup>	65	—	V
With base open	V <sub>(BR)CEO</sub>				200 <sup>a</sup>	30	—	
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>			5	0	4	—	V
Thermal Resistance (Junction-to-Case)	R <sub>θJC</sub>						3.5	°C/W

<sup>a</sup>Pulsed through a 25-mH inductor; duty factor = 50%.

**DYNAMIC**

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS		UNITS
		DC Collector Supply (V <sub>CC</sub> )-V	Input Power (P <sub>IE</sub> )-W	Output Power (P <sub>OE</sub> )-W	Frequency (f)-MHz	Min.	Max.	
Output Power (See Fig. 10)	POE	28	9.5		400	30	—	W
Overdrive Test (See Fig. 10)	POEO	28	12.0		400	34	—	
Power Gain	G <sub>PE</sub>	28		30	400	5	—	dB
Collector Efficiency	η <sub>C</sub>	28	9.5		400	65	—	%
Collector-to-Base Output Capacitance	C <sub>obo</sub>	30 (V <sub>CB</sub> )			1	—	35	pF

<sup>a</sup>In accordance with JEDEC registration data format JS-6 RDF-3/JS-9 RDF-7.

**TYPICAL APPLICATION INFORMATION**

CIRCUIT	COLLECTOR SUPPLY VOLTAGE (V <sub>CC</sub> )-V	OUTPUT POWER (P <sub>OE</sub> )-W	INPUT POWER (P <sub>IE</sub> )-W	COLLECTOR EFFICIENCY (η <sub>C</sub> )-%	FIG. NO.
225-400 MHz (2N6105) <sup>Δ</sup> Broadband Amplifier	28	30	5 – 7.5	69 – 77	13
	20	20	5 – 7	70 – 82	13
400 MHz (2N6104-5) Narrow-Band Amplifier	28	34	9.5	78	10
225-400 MHz (2N6105) <sup>Δ</sup> Push-Pull Amplifier	28	60	11.5 – 18	72 – 84	16

<sup>Δ</sup> Similar performance can be obtained with the 2N6104.