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RF Power Transistors

2N6104
2N6105

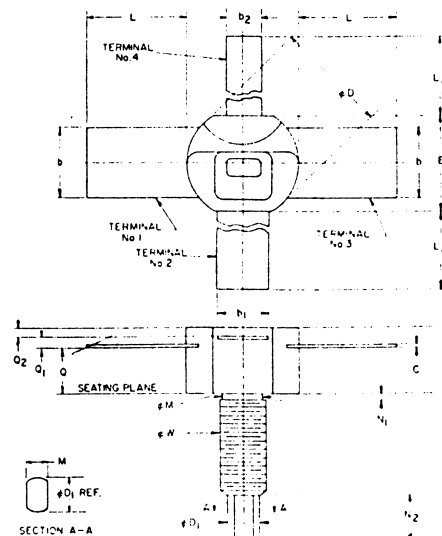
MAXIMUM RATINGS, Absolute-Maximum Values:

* 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

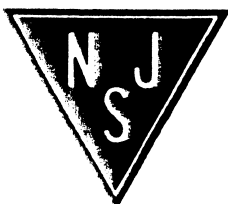


SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.150	0.230	3.81	5.84	-
b	0.195	0.205	4.953	5.207	-
b1	0.135	0.145	3.429	3.683	-
b2	0.095	0.105	2.413	2.667	-
C	0.004	0.010	0.102	0.254	3
D	0.305	0.320	7.75	8.12	5
D1	0.110	0.130	2.80	3.30	1
E	0.275	0.300	6.99	7.62	5
L	0.265	0.290	6.74	7.36	-
L2	0.455	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	-
Q	0.120	0.170	3.05	4.31	-
Q1	0.025	0.045	0.64	1.14	-
Q2	-	-	-	-	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 ANSI 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 Q2, QD AND E.



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

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				
		V _{CE}	V _{BE}	I _E	I _C	MIN.	MAX.	
Collector-to-Emitter Cutoff Current: Base connected to emitter, T _C =55°C	I _{CES}	30	0			—	10	mA
Collector-to-Emitter Breakdown Voltage: With base connected to emitter	V _{(BR)CES}		0		200 ^a	65	—	V
With base open	V _{(BR)CEO}				200 ^a	30	—	
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}			5	0	4	—	V
Thermal Resistance (Junction-to-Case)	R _{θJC}						3.5	°C/W

^aPulsed through a 25-mH inductor; duty factor = 50%.

DYNAMIC

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS		UNITS
		DC Collector Supply (V _{CC})-V	Input Power (P _{IE})-W	Output Power (P _{OE})-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 _{PE}	28		30	400	5	—	dB
Collector Efficiency	η _C	28	9.5		400	65	—	%
Collector-to-Base Output Capacitance	C _{obo}	30 (V _{CB})			1	—	35	pF

^aIn accordance with JEDEC registration data format JS-6 RDF-3/JS-9 RDF-7.

TYPICAL APPLICATION INFORMATION

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

^Δ Similar performance can be obtained with the 2N6104.