New Jersey Semi-Conductor Products, Inc.

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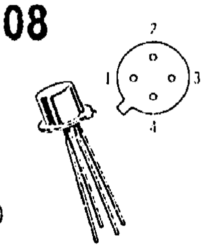
2N3307 (SILICON)
2N3308



STYLE 10
PIN 1. EMITTER
2. BASE
3. COLLECTOR
4. CASE

(TO-72)

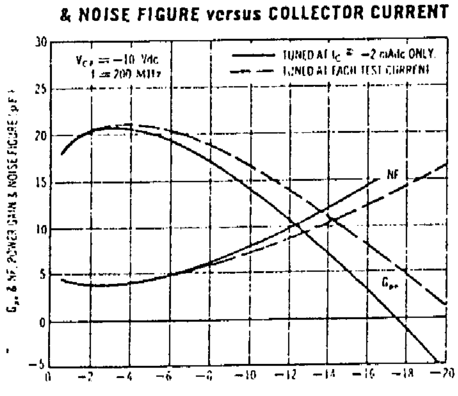
PNP silicon annular transistors for high-gain, low-noise amplifier, oscillator, mixer and frequency multiplier applications.

*MAXIMUM RATINGS

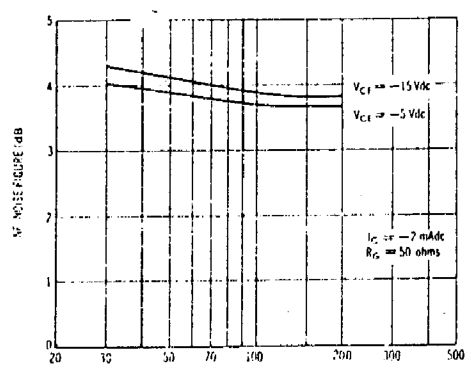
Rating	Symbol	Value		Unit
		2N3307	2N3308	
Collector-Base Voltage	V_{CB}	40	30	Vdc
Collector-Emitter Voltage	V_{CES}	40	30	Vdc
Collector-Emitter Voltage	V_{CEO}	35	25	Vdc
Emitter-Base Voltage	V_{EB}	3.0		Vdc
Collector Current	I_C	50		mAdc
Power Dissipation at $T_C = 25°C$ Derate above 25°C	P_D	300 1.71		mW mW/°C
Power Dissipation at $T_A = 25°C$ Derate above 25°C	P_D	200 1.14		mW mW/°C
Junction Temperature	T_J	200		°C
Storage Temperature Range	T_{stg}	-65 to +200		°C

*Indicates JEDEC Registered Data

COMMON EMITTER AVERAGE SMALL POWER GAIN & NOISE FIGURE versus COLLECTOR CURRENT



NOISE FIGURE versus FREQUENCY



Quality Semi-Conductors

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*ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

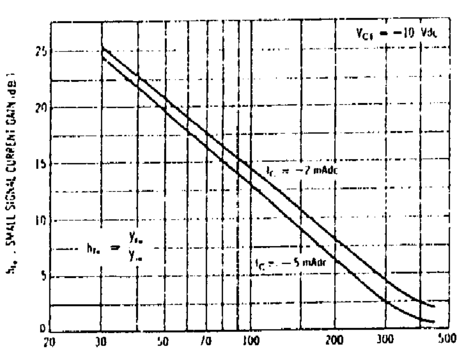
Characteristic	Symbol	Test Conditions		Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	I_C = 10 μAdc, I_E = 0	2N3307 2N3308	40 30	– –	– –	Vdc
Collector-Emitter Breakdown Voltage	BV_{CES}	I_C = 10 μAdc, V_{BE} = 0	2N3307 2N3308	40 30	– –	– –	Vdc
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C = 2.0 mAdc, I_B = 0	2N3307 2N3308	35 25	– –	– –	Vdc
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E = 10 μAdc, I_C = 0	Both Types	3.0	–	--	Vdc
Collector Cutoff Current	I_{CBO}	V_{CB} = 15 Vdc V_{CB} = 15 Vdc, T = 150 °C	Both Types 2N3307	– –	0.001 0.5	0.010 3.0	μAdc
DC Current Gain	h_{FE}	V_{CE} = 10 Vdc, I_C = 2 mAdc	2N3307 2N3308	40 25	– –	250 250	–
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 3 mAdc, I_B = 0.6 mAdc	Both Types	–	–	0.4	Vdc
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 3 mAdc, I_B = 0.6 mAdc	Both Types	–	–	1.0	Vdc
AC Current Gain	h_{fe}	V_{CE} = 10 Vdc, I_C = 2 mAdc, f = 1 kHz	2N3307 2N3308	40 25	– –	250 250	–
Output Capacitance(1)	C_{ob}	V_{CB} = 10 Vdc, I_E = 0, f = 0.1 MHz	2N3307 2N3308	– –	1.0 1.2	1.3 1.6	pF
Collector-Base Time Constant	$r_b'C_c$	V_{CB} = 10 Vdc, I_C = 2 mAdc, f = 31.8 MHz	2N3307 2N3308	2.0 2.0	– –	15 20	ps
Current Gain-Bandwidth Product	f_T	V_{CE} = 10 Vdc, I_C = 2 mAdc, f = 100 MHz	Both Types	300	–	1200	MHz
Maximum Frequency of Oscillation	f_{max}	V_{CE} = 10 Vdc, I_C = 2 mAdc	Both Types	–	2000	–	MHz
Power Gain	G_e	V_{CE} = 10 Vdc, I_C = 2 mAdc, f = 200 MHz	Both Types	17	–	24	dB
Noise Figure	NF	V_{CE} = 10 Vdc, I_C = 2 mAdc, f = 200 MHz	2N3307 2N3308	– –	4.0 5.0	4.5 6.0	dB
Power Gain (AGC)(2)	G_e	V_{CE} = 5.0 Vdc, I_C = 20 mAdc, f = 200 MHz	2N3307 2N3308	– –	– 0	0 --	dB

(1)C_{ob} is measured in guarded circuit such that the can capacitance is not included.

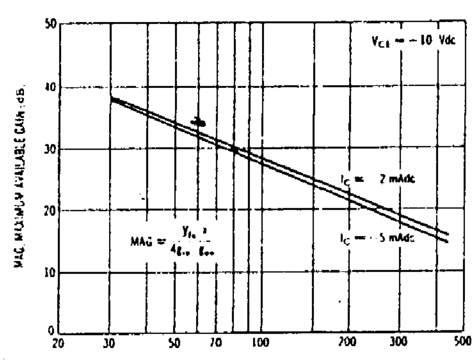
(2) AGC is obtained by increasing I_C. The circuit remains adjusted for V_{CE} = -10 Vdc, I_C = -2 mAdc operation.

* Indicates JEDEC Registered Data

SMALL SIGNAL CURRENT GAIN versus FREQUENCY



MAXIMUM AVAILABLE GAIN versus FREQUENCY



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