

TYPES 2N3707 THRU 2N3711, A5T3707 THRU A5T3711, A8T3707 THRU A8T3711 N-P-N SILICON TRANSISTORS

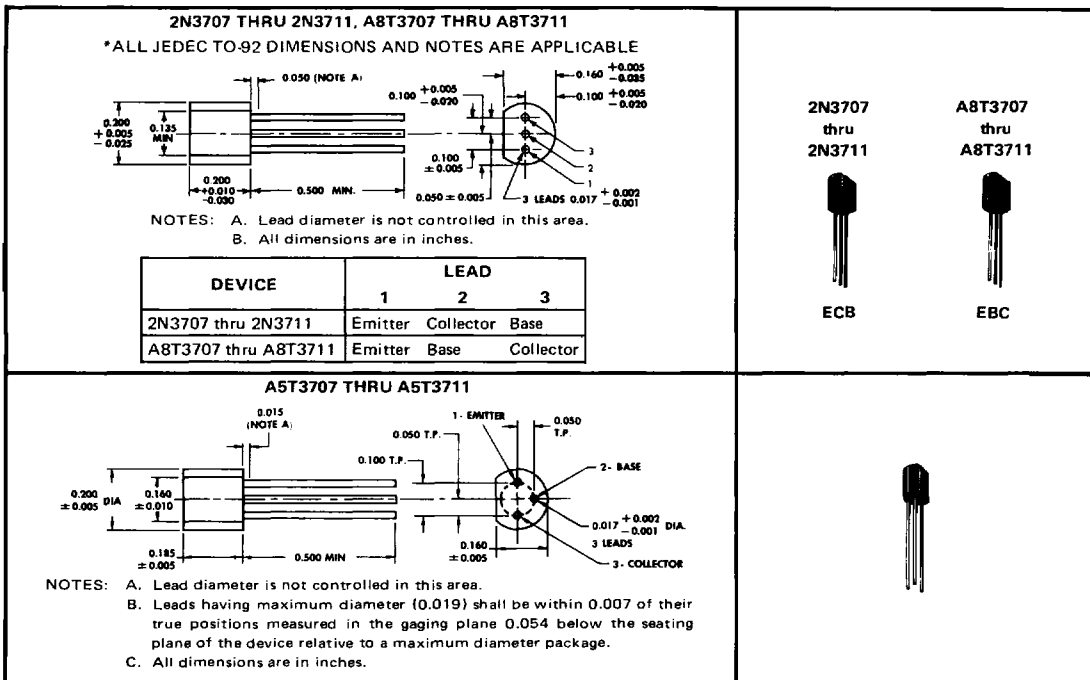
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SELECT† TRANSISTORS‡

- Ideal for Low-Level Amplifier Applications
- Rugged One-Piece Construction with In-Line Leads or Standard TO-18 100-mil Pin-Circle Configuration
- Recommended for Complementary Use with 2N4058 thru 2N4062, A5T4058 thru A5T4062, or A8T4058 thru A8T4062

mechanical data

These transistors are encapsulated in a plastic compound specifically designed for this purpose, using a highly mechanized process developed by Texas Instruments. The case will withstand soldering temperatures without deformation. These devices exhibit stable characteristics under high-humidity conditions and are capable of meeting MIL-STD-202C, Method 106B. The transistors are insensitive to light.



absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

Collector-Base Voltage	30 V*
Collector-Emitter Voltage (See Note 1)	30 V*
Emitter-Base Voltage	6 V*
Continuous Collector Current	30 mA*
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	<div style="display: inline-block; vertical-align: middle;"> 625 mW§ 360 mW* </div>
Storage Temperature Range	-65°C to 150°C*
Lead Temperature 1/16 Inch from Case for 10 Seconds	260°C*

NOTES: 1. This value applies when the base-emitter diode is open-circuited.

2. Derate the 625-mW rating linearly to 150°C free air temperature at the rate of 5 mW/°C. Derate the 360-mW (JEDEC registered) rating linearly to 150°C free-air temperature at the rate of 2.88 mW/°C.

*The asterisk identifies JEDEC registered data for the 2N3707 through 2N3711 only. This data sheet contains all applicable registered data in effect at the time of publication.

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‡U.S. Patent No. 3,439,238

§Texas Instruments guarantees this value in addition to the JEDEC registered value which is also shown.

USES CHIP N21

2N3707 THRU 2N3711, A5T3707 THRU A5T3711, A8T3707 THRU A8T3711 N-P-N SILICON TRANSISTORS

*electrical characteristics at 25°C free-air temperature

PARAMETER	TEST CONDITIONS	2N3707	2N3708	2N3709	2N3710	2N3711	UNIT		
		A5T3707	A5T3708	A5T3709	A5T3710	A5T3711			
		A8T3707	A8T3708	A8T3709	A8T3710	A8T3711			
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = 1 \text{ mA}, I_B = 0$	30	30	30	30	30	V		
I_{CBO} Collector Cutoff Current	$V_{CB} = 20 \text{ V}, I_E = 0$	100	100	100	100	100	nA		
I_{EBO} Emitter Cutoff Current	$V_{EB} = 6 \text{ V}, I_C = 0$	100	100	100	100	100	nA		
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = 5 \text{ V}, I_C = 100 \mu\text{A}$	100	400						
	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$		45 660	45 165	90 330	180 660			
V_{BE} Base-Emitter Voltage	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$	0.5	1	0.5	1	0.5	1	V	
$V_{CE(sat)}$ Collector-Emitter Saturation Voltage	$I_B = 0.5 \text{ mA}, I_C = 10 \text{ mA}$		1		1		1	V	
h_{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 5 \text{ V}, I_C = 100 \mu\text{A}, f = 1 \text{ kHz}$	100	550						
	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}, f = 1 \text{ kHz}$		45 800	45 250	90 450	180 800			

*operating characteristics at 25°C free-air temperature

PARAMETER	TEST CONDITIONS	2N3707, A5T3707, A8T3707			UNIT
		MIN	TYP	MAX	
		\bar{F} Average Noise Figure	$V_{CE} = 5 \text{ V}, I_C = 100 \mu\text{A}, R_G = 5 \text{ k}\Omega,$ Noise Bandwidth = 15.7 kHz, See Note 3		

NOTE 3: Average Noise Figure is measured in an amplifier with response down 3 dB at 10 Hz and 10 kHz and a high-frequency rolloff of 6 dB/octave.

*The asterisk identifies JEDEC registered data for 2N3707 through 2N3711 only.

THERMAL INFORMATION

DISSIPATION DERATING CURVE

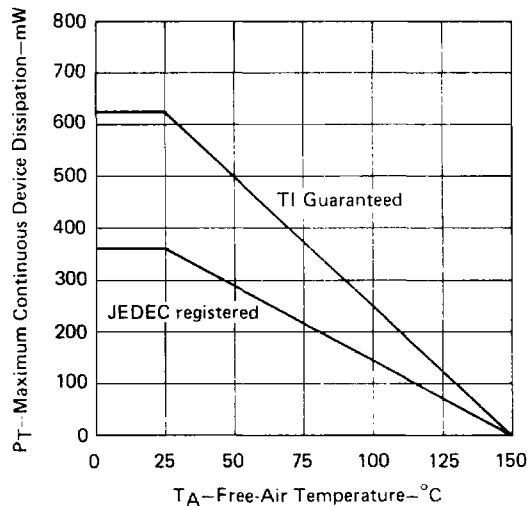


FIGURE 1