

TYPES 2N5222, A6T5222 N-P-N SILICON TRANSISTORS

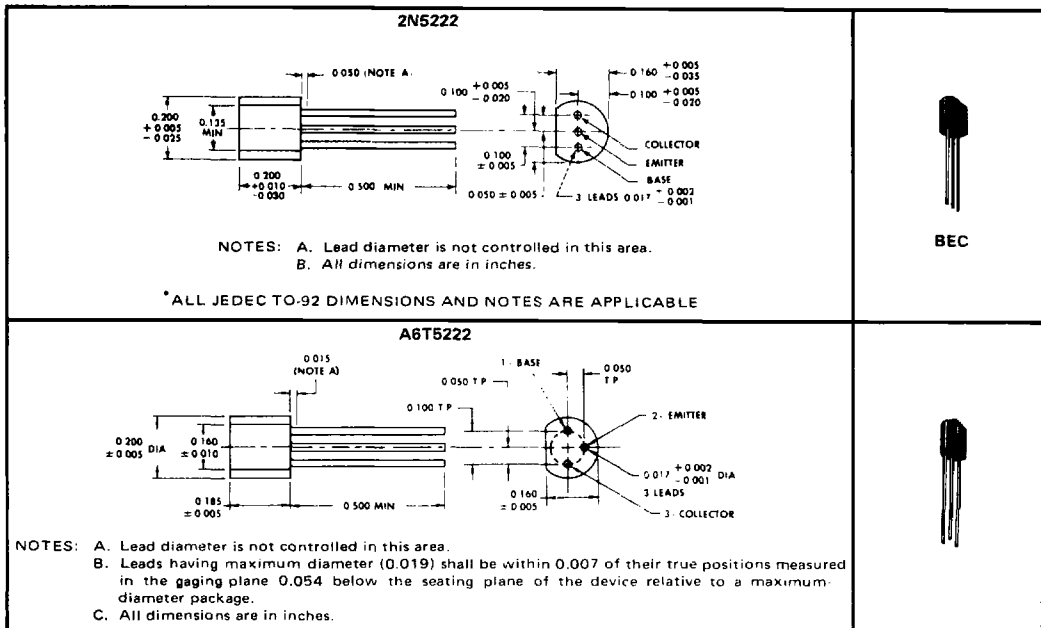
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SILECT† TRANSISTORS‡

- For RF Amplifier, Mixer, and Video IF Applications in Radio and Television Receivers
- Rugged One-Piece Construction with In-Line Leads or Standard TO-18 100-mil Pin-Circle Configuration

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	20 V*		
Collector-Emitter Voltage (See Note 1)	15 V*		
Emitter-Base Voltage	2 V*		
Continuous Collector Current	50 mA*		
Continuous Device Dissipation at (or below) 25°C Free-air Temperature (See Note 2)	<table border="0"> <tr> <td>625 mW§</td> </tr> <tr> <td>310 mW*</td> </tr> </table>	625 mW§	310 mW*
625 mW§			
310 mW*			
Storage Temperature Range	<table border="0"> <tr> <td>-65°C to 150°C§</td> </tr> <tr> <td>-55°C to 135°C*</td> </tr> </table>	-65°C to 150°C§	-55°C to 135°C*
-65°C to 150°C§			
-55°C to 135°C*			
Lead Temperature 1/16 Inch from Case for 60 Seconds	<table border="0"> <tr> <td>260°C§</td> </tr> <tr> <td>230°C*</td> </tr> </table>	260°C§	230°C*
260°C§			
230°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 310-mW (JEDEC registered) rating linearly to 135°C free-air temperature at the rate of 2.82 mW/°C.

*The asterisk identifies JEDEC registered data for the 2N5222 only. This data sheet contains all applicable registered data in effect at the time of publication.

†Trademark of Texas Instruments.

‡U.S. Patent No. 3,439,238.

§Texas Instruments guarantees these values in addition to the JEDEC registered values which are also shown.

USES CHIP N24

TYPES 2N5222, A6T5222

N-P-N SILICON TRANSISTORS

*electrical characteristics at 25°C free-air temperature

PARAMETER	TEST CONDITIONS	MIN	MAX	UNIT
V(BR)CBO Collector-Base Breakdown Voltage	I _C = 100 μA, I _E = 0	20		V
V(BR)CEO Collector-Emitter Breakdown Voltage	I _C = 1 mA, I _B = 0, See Note 3	15		V
V(BR)EBO Emitter-Base Breakdown Voltage	I _E = 100 μA, I _C = 0	2		V
I _{CBO} Collector Cutoff Current	V _{CB} = 10 V, I _E = 0		100	nA
I _{EBO} Emitter Cutoff Current	V _{EB} = 2 V, I _C = 0		100	nA
h _{FE} Static Forward Current Transfer Ratio	V _{CE} = 10 V, I _C = 4 mA, See Note 3	20	1500	
V _{BE} Base-Emitter Voltage	I _B = 0.4 mA, I _C = 4 mA		1.2	V
V _{CE(sat)} Collector-Emitter Saturation Voltage	I _B = 0.4 mA, I _C = 4 mA		1	V
h _{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	V _{CE} = 10 V, I _C = 4 mA, f = 1 kHz	20	3000	
f _T Transition Frequency	V _{CE} = 10 V, I _C = 4 mA, See Note 4	450		MHz
C _{cb} Collector-Base Capacitance	V _{CB} = 10 V, I _E = 0, f = 1 MHz, See Note 5		1.3	pF

- NOTES: 3. These parameters must be measured using pulse techniques. $t_w = 300 \mu s$, duty cycle $\leq 2\%$.
4. To obtain f_T , the $|h_{fe}|$ response with frequency is extrapolated at the rate of -6 dB per octave from $f = 100$ MHz to the frequency at which $|h_{fe}| = 1$.
5. C_{cb} measurement employs a three-terminal capacitance bridge incorporating a guard circuit. The emitter is connected to the guard terminal of the bridge.

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THERMAL INFORMATION

