TYPES A5T3391, A5T3391A, A5T3392, A7T3391, A7T3391A, A7T3392, A8T3391, A8T3391A, A8T3392 N-P-N SILICON TRANSISTORS

BULLETIN NO. DL-S 7311931, MARCH 1973

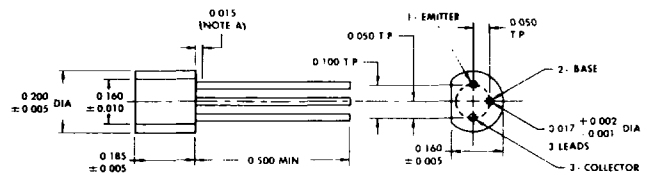
SILECT† TRANSISTORS‡

- For Small-Signal Amplifier Applications
- Rugged One-Piece Construction with In-Line Leads or Standard TO-18 100-mil Pin-Circle Configuration
- A7T3391, A7T3391A, and A7T3392 are Plug-In Replacements for 2N3391, 2N3391A, 2N3392 (TO-98 Package)

mechanical data

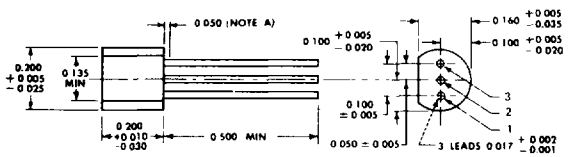
These transistors are encapsulated in a plastic compound specifically designed for this purpose, using a highly mechanized process developed by Texas Instruments. The case will withstand soldering temperatures without deformation. These devices exhibit stable characteristics under high-humidity conditions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

A5T3391, A5T3391A, A5T3392



NOTES A. Lead diameter is not controlled in this area.
B. Leads having maximum diameter (0.019) shall be within 0.007 of their true positions measured in the gaging plane 0.054 below the seating plane of the device relative to a maximum-diameter package.
C. All dimensions are in inches.

A7T3391, A7T3391A, A7T3392, A8T3391, A8T3391A, A8T3392



NOTES: A. Lead diameter is not controlled in this area.
B. All dimensions are in inches.

ALL JEDEC TO-92 DIMENSIONS AND NOTES ARE APPLICABLE

DEVICE	LEADS		
	1	2	3
A7T3391, A7T3391A, A7T3392	Emitter	Collector	Base
A8T3391, A8T3391A, A8T3392	Emitter	Base	Collector

A7T3391
A7T3391A
A7T3392

A8T3391
A8T3391A
A8T3392

ECB

EBC

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

Collector-Base Voltage	25 V
Collector-Emitter Voltage (See Note 1)	25 V
Emitter-Base Voltage	5 V
Continuous Collector Current	100 mA
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	625 mW
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 linearly to 150°C at the rate of 5 mW/°C.

†Trademark of Texas Instruments
‡U.S. Patent No. 3,439,238

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electrical characteristics at 25°C free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS			A5T3391 A7T3391 A8T3391 A5T3391A A7T3391A A8T3391A		A5T3392 A7T3392 A8T3392		UNIT
					MIN	MAX	MIN	MAX	
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 1 mA, I_B = 0	See Note 3				25		V
		I_C = 10 mA, I_B = 0			25				
I_{CBO}	Collector Cutoff Current	V_{CB} = 25 V, I_B = 0				100		100	nA
		V_{CB} = 25 V, I_B = 0,		T_A = 100°C		10		10	μA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 5 V, I_C = 0				100		100	nA
h_{FE}	Static Forward Current Transfer Ratio	V_{CE} = 4.5 V, I_C = 2 mA			250	500	150	300	
h_{fe}	Small-Signal Common-Emitter Forward Current Transfer Ratio	V_{CE} = 4.5 V, I_C = 2 mA,		f = 1 kHz	250	800	150	500	
C_{obo}	Common-Base Open-Circuit Output Capacitance	V_{CB} = 10 V, I_E = 0,		f = 1 MHz	2	10	2	10	pF

NOTE 3: This parameter must be measured using pulse techniques. t_w = 300 μs, duty cycle ≤ 2%.

operating characteristics at 25°C free-air temperature

PARAMETER		TEST CONDITIONS			A5T3391A A7T3391A A8T3391A		UNIT
					MIN	MAX	
$\overline{F}$	Average Noise Figure	V_{CE} = 4.5 V,	I_C = 100 μA,	R_G = 500 Ω,		5	dB
		Noise Bandwidth = 15.7 kHz,		See Note 4			

NOTE 4: 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.

THERMAL INFORMATION

DISSIPATION DERATING CURVE