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

BULLETIN NO. DL-S 7311965, MARCH 1973

SILECT† TRANSISTORS‡

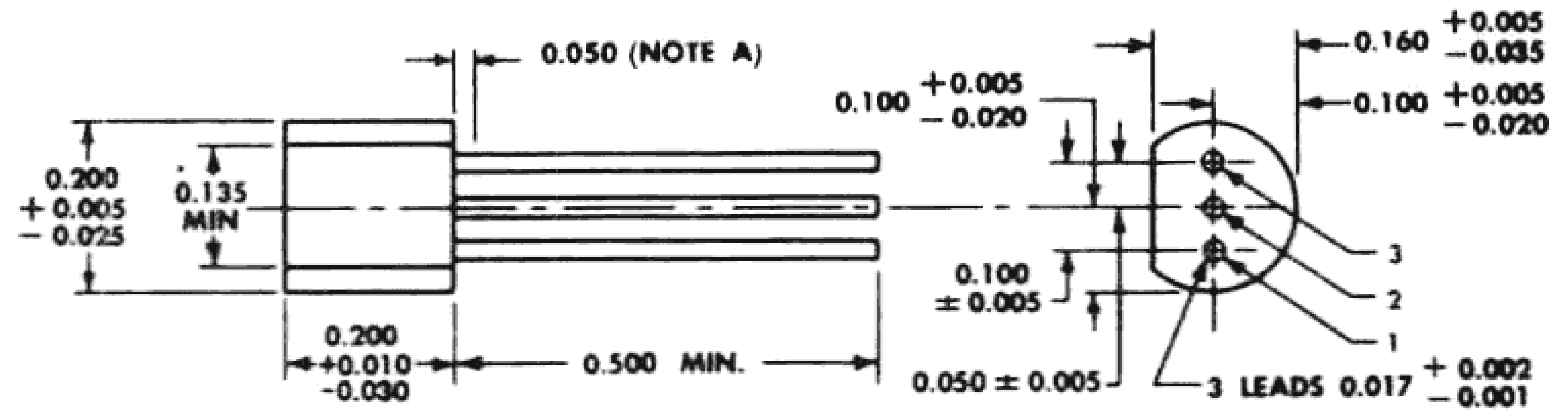
- **Ideal for Low-Level Amplifier Applications**
- **Rugged One-Piece Construction with In-Line Leads or Standard TO-18 100-mil Pin-Circle Configuration**
- **Recommended for Complementary Use with 2N4058 thru 2N4062, A5T4058 thru A5T4062, or A8T4058 thru A8T4062**

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.

2N3707 THRU 2N3711, A8T3707 THRU A8T3711

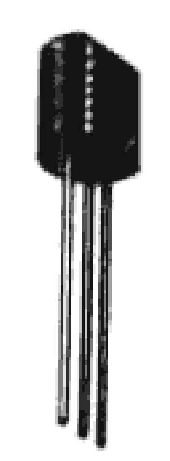
*ALL JEDEC TO-92 DIMENSIONS AND NOTES ARE APPLICABLE



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

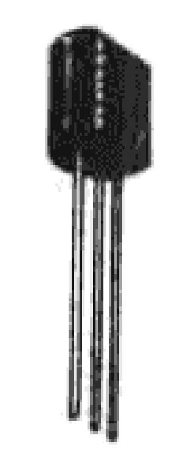
DEVICE	LEAD 1	LEAD 2	LEAD 3
2N3707 thru 2N3711	Emitter	Collector	Base
A8T3707 thru A8T3711	Emitter	Base	Collector

2N3707
thru
2N3711



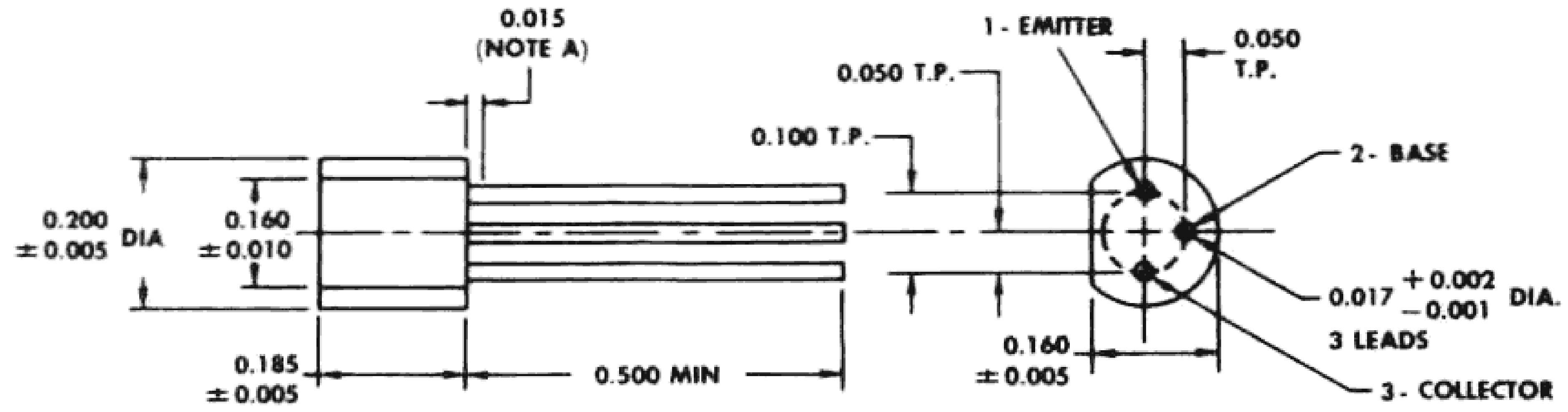
ECB

A8T3707
thru
A8T3711

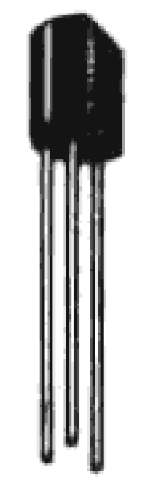


EBC

A5T3707 THRU A5T3711



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.



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)	625 mW§ 360 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 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.

†Trademark of Texas Instruments

‡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

*electrical characteristics at 25°C free-air temperature

PARAMETER		TEST CONDITIONS	2N3707 A5T3707 A8T3707		2N3708 A5T3708 A8T3708		2N3709 A5T3709 A8T3709		2N3710 A5T3710 A8T3710		2N3711 A5T3711 A8T3711		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 1 mA, I_B = 0	30		30		30		30		30		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 20 V, I_E = 0		100		100		100		100		100	nA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 6 V, I_C = 0		100		100		100		100		100	nA
h_{FE}	Static Forward Current Transfer Ratio	V_{CE} = 5 V, I_C = 100 μA	100	400									
		V_{CE} = 5 V, I_C = 1 mA			45	660	45	165	90	330	180	660	
V_{BE}	Base-Emitter Voltage	V_{CE} = 5 V, I_C = 1 mA	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_B = 0.5 mA, I_C = 10 mA		1		1		1		1		1	V
h_{fe}	Small-Signal Common-Emitter Forward Current Transfer Ratio	V_{CE} = 5 V, I_C = 100 μA, f = 1 kHz	100	550									
		V_{CE} = 5 V, I_C = 1 mA, f = 1 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	
$\overline{F}$	Average Noise Figure	V_{CE} = 5 V, I_C = 100 μA, R_G = 5 kΩ, Noise Bandwidth = 15.7 kHz, See Note 3		1.9	5	dB

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

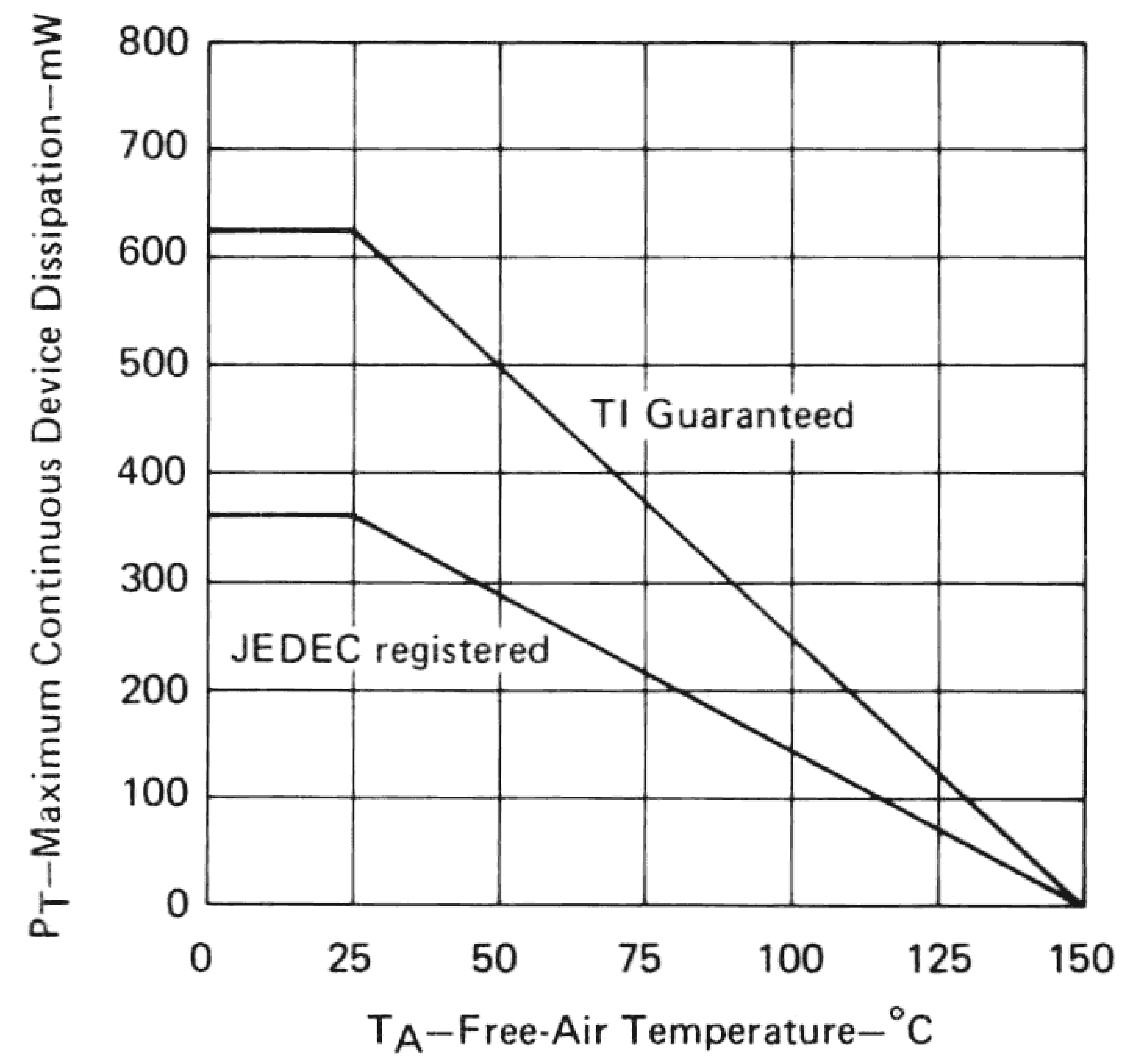


FIGURE 1