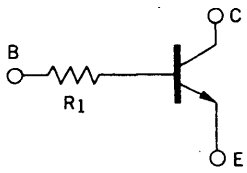
NEC

NPN SILICON TRANSISTOR
AA1L3Z

DESCRIPTION The AA1L3Z is designed for use in medium speed switching circuit.

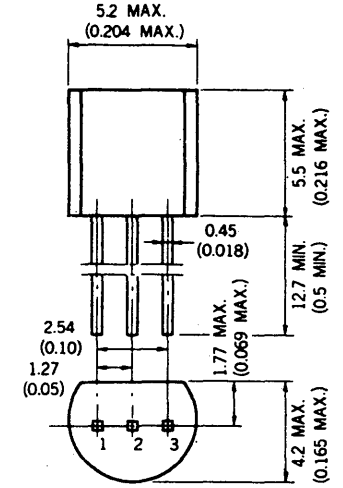
FEATURE

- Bias resistors built-in type NPN transistor equivalent circuit.



R_1 = 4.7 kΩ

PACKAGE DIMENSIONS
in millimeters (inches)



1. EMITTER
2. COLLECTOR
3. BASE

EIAJ : SC-43B
JEDEC : TO-92
IEC : PA33

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

- Storage Temperature . . . . . −55 to +150 °C
- Junction Temperature . . . . . 150 °C Maximum

Maximum Power Dissipation (T_a = 25 °C)

- Total Power Dissipation . . . . . 300 mW

Maximum Voltages and Currents (T_a = 25 °C)

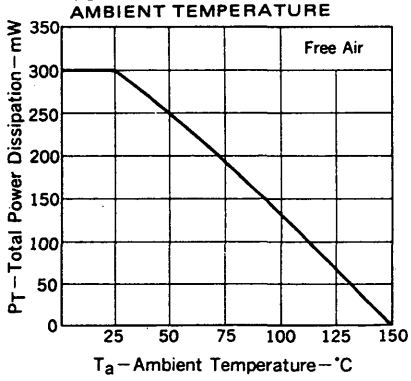
- V_{CBO} Collector to Base Voltage . . . . . 60 V
- V_{CEO} Collector to Emitter Voltage . . . . . 50 V
- V_{EBO} Emitter to Base Voltage . . . . . 5.0 V
- $I_{C(DC)}$ Collector Current (DC) . . . . . 100 mA
- $I_{C(pulse)}$ Collector Current (pulse) . . . . . 200 mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

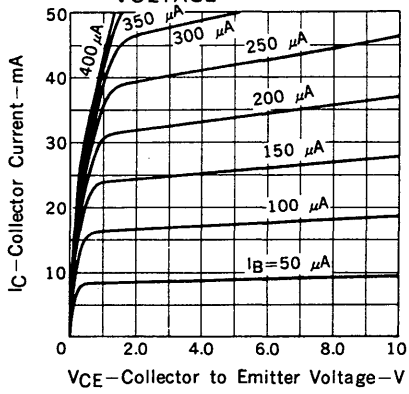
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
R_1	Input Resistance	3.29	4.7	6.11	kΩ	
V_{IL}	Low Level Input Voltage		0.54	0.5	V	V_{CE} = 5.0 V, I_C = 100 μA
V_{IH}	Hi Level Input Voltage	1.2	0.71		V	V_{CE} = 0.2 V, I_C = 5.0 mA
t_{on}	Turn On Time		0.03	0.2	μs	V_{CC} = 5.0 V, R_L = 1.0 kΩ,
t_{stg}	Storage Time		3.2	5.0	μs	V_{in} = 5.0 V,
t_{off}	Turn Off Time		3.4	6.0	μs	PW = 2 μs, Duty Cycle ≦ 2 %
h_{FE1}	DC Current Gain	135	450	600	–	V_{CE} = 5.0 V, I_C = 5.0 mA
h_{FE2}	DC Current Gain	100	380		–	V_{CE} = 5.0 V, I_C = 50 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.04	0.2	V	I_C = 5.0 mA, I_B = 0.25 mA
I_{CBO}	Collector Cutoff Current			0.1	μA	V_{CB} = 50 V, I_E = 0

TYPICAL CHARACTERISTICS (T_a = 25 °C)

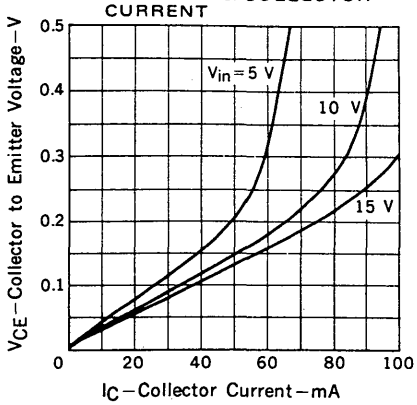
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



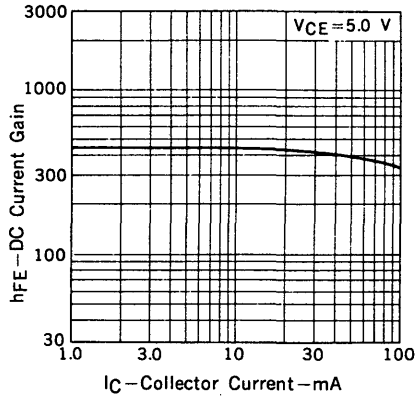
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



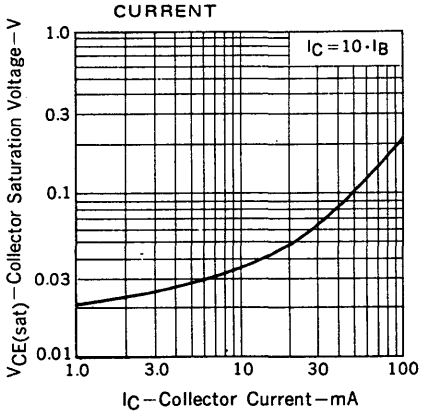
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



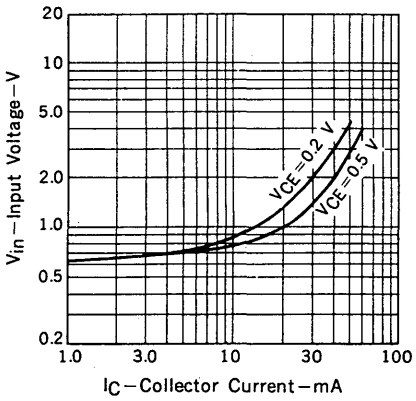
DC CURRENT GAIN vs. COLLECTOR CURRENT



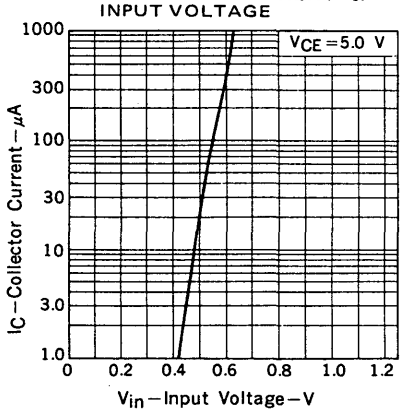
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



INPUT VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs. INPUT VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT