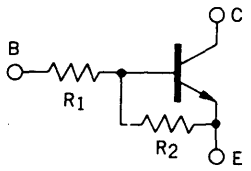
NEC

NPN SILICON TRANSISTOR
AA1L4M

DESCRIPTION The AA1L4M is designed for use in medium speed switching circuit.

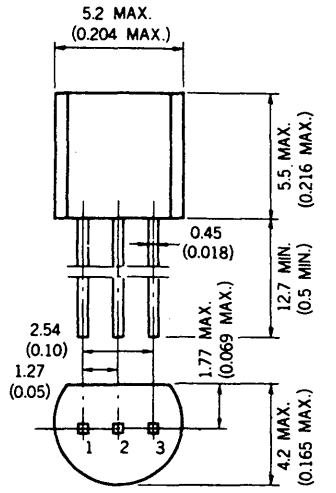
FEATURE

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



R_1 = 47 kΩ
R_2 = 47 kΩ

PACKAGE DIMENSIONS
in millimeters (inches)



1. EMITTER
2. COLLECTOR
3. BASE

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

4-5

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)

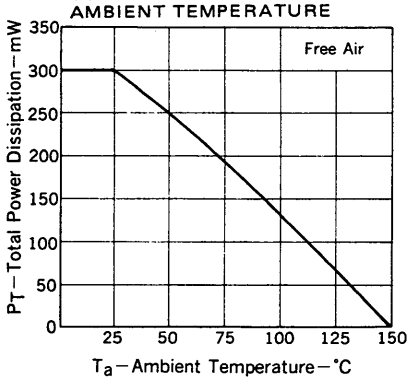
V_{CBO}	Collector to Base Voltage	60	V
V_{CEO}	Collector to Emitter Voltage	50	V
V_{EBO}	Emitter to Base Voltage	10	V
$I_{C(DC)}$	Collector Current (DC)	100	mA
$I_{C(pulse)}$	Collector Current (pulse)	200	mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

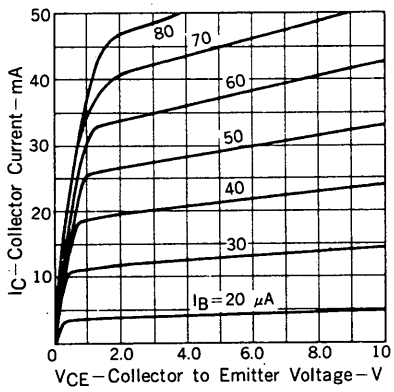
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
R_1	Input Resistance	32.9	47.0	61.1	kΩ	
R_1/R_2	Resistors Ratio	0.9	1.0	1.1	—	
V_{IL}	Low Level Input Voltage		1.1	0.8	V	V_{CE} = 5.0 V, I_C = 100 μA
V_{IH}	Hi Level Input Voltage	5.0	1.7		V	V_{CE} = 0.2 V, I_C = 5.0 mA
t_{on}	Turn on Time		0.27	0.7	μs	V_{CC} = 5.0 V, R_L = 1.0 kΩ, V_{in} = 5.0 V, PW = 2 μs, Duty Cycle ≦ 2 %
t_{stg}	Storage Time		2.0	5.0	μs	
t_{off}	Turn off Time		2.48	6.0	μs	
h_{FE1}	DC Current Gain	85	240	340	—	V_{CE} = 5.0 V, I_C = 5.0 mA
h_{FE2}	DC Current Gain	95	640		—	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)

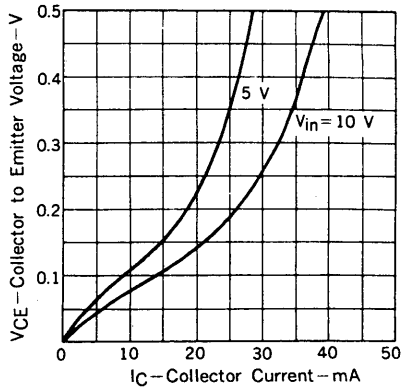
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



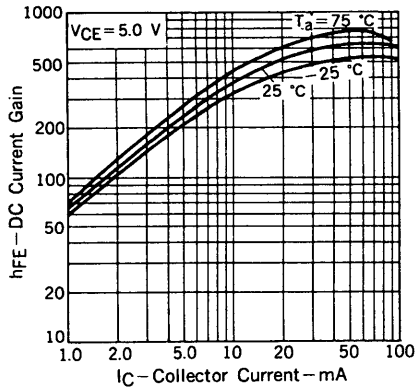
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



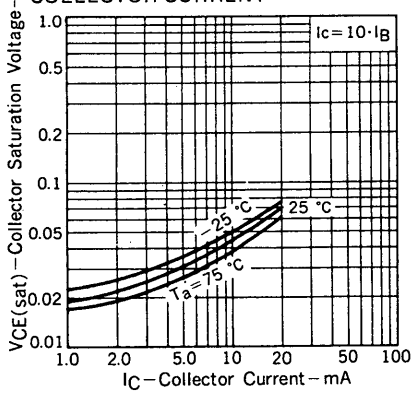
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



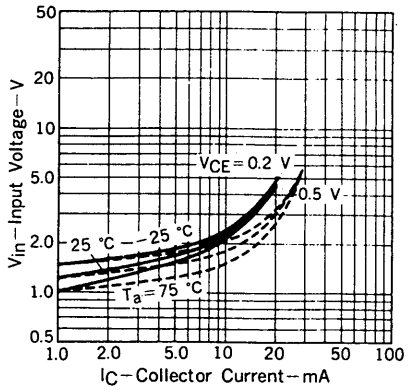
DC CURRENT GAIN vs. COLLECTOR CURRENT



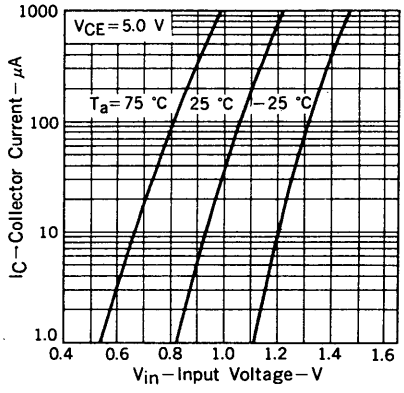
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



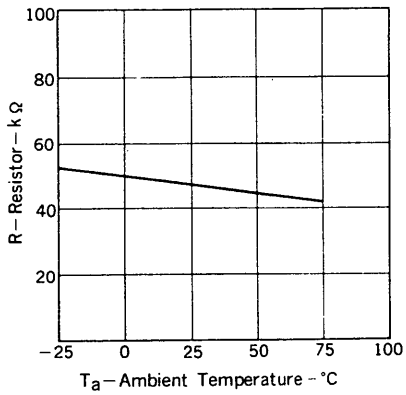
INPUT VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs. INPUT VOLTAGE



RESISTOR vs. AMBIENT TEMPERATURE



SWITCHING TIME vs. COLLECTOR CURRENT

