DATA SHEET

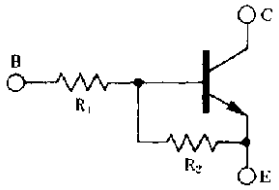
NEC

COMPOUND TRANSISTOR
BA1L3M

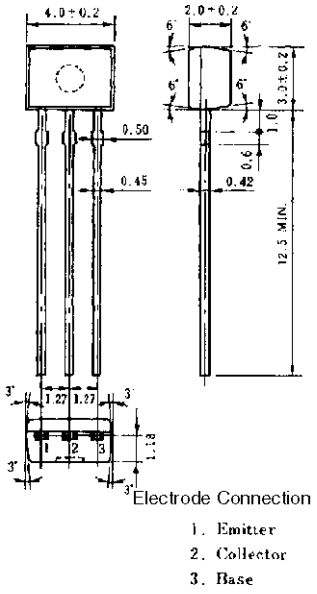
on-chip resistor NPN silicon epitaxial transistor
For mid-speed switching

FEATURES

- On-chip bias resistor
  (R_1 = 4.7 kΩ, R_2 = 4.7 kΩ)
- Complementary transistor with BN1L3M



PACKAGE DRAWING (UNIT: mm)



Electrode Connection
1. Emitter
2. Collector
3. Base

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	10	V
Collector current (DC)	$I_{C(DC)}$	100	mA
Collector current (Pulse)	$I_{C(pulse)}$ *	200	mA
Total power dissipation	P_T	250	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

* PW ≤ 10 ms, duty cycle ≤ 50 %

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 50 V, I_E = 0			100	nA
DC current gain	h_{FE1} **	V_{CE} = 5.0 V, I_C = 5.0 mA	20	40	80	–
DC current gain	h_{FE2} **	V_{CE} = 5.0 V, I_C = 50 mA	70	140		–
Collector saturation voltage	$V_{CE(sat)}$ **	I_C = 5.0 mA, I_B = 0.25 mA		0.08	0.3	V
Low level input voltage	V_{IL} **	V_{CE} = 5.0 V, I_C = 100 μA		1.1	0.2	V
High level input voltage	V_{IH} **	V_{CE} = 0.2 V, I_C = 5.0 mA	3.0	1.5		V
Input resistance	R_1		3.29	4.7	6.11	kΩ
Resistance ratio	R_1/R_2		0.9	1.0	1.1	–
Turn-on time	t_{on}	V_{CC} = 5 V, R_L = 1 kΩ			0.5	μs
Storage time	t_{stg}	V_I = 5 V, PW = 2 μs			3.0	μs
Turn-off time	t_{off}	duty cycle≤2 %			5.0	μs

** PW ≤ 350 μs, duty cycle ≤ 2 %

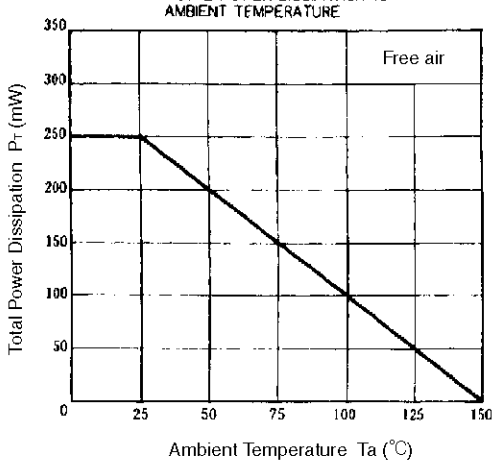
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Document No. D16175EJ1V0DS00 (1st edition)
Date Published April 2002 N CP(K)
Printed in Japan

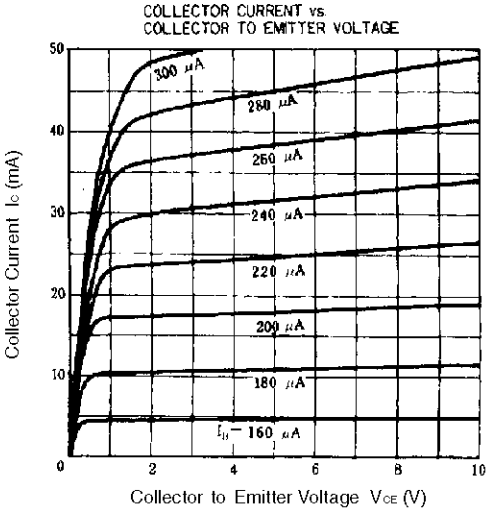
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TYPICAL CHARACTERISTICS (T_a = 25°C)

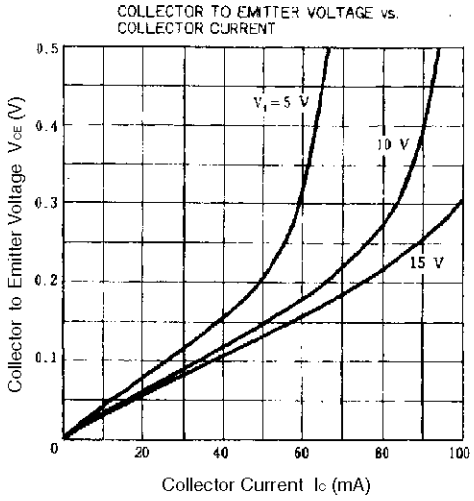
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



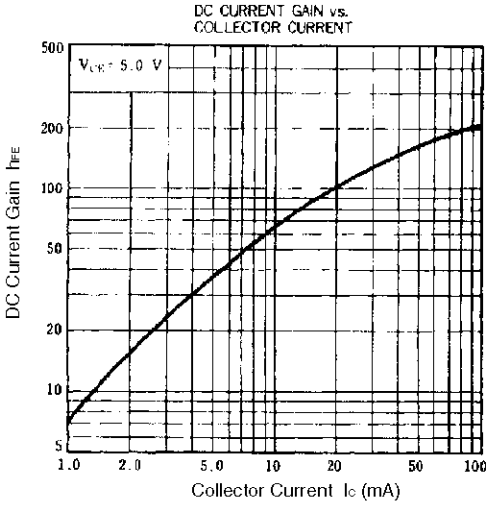
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



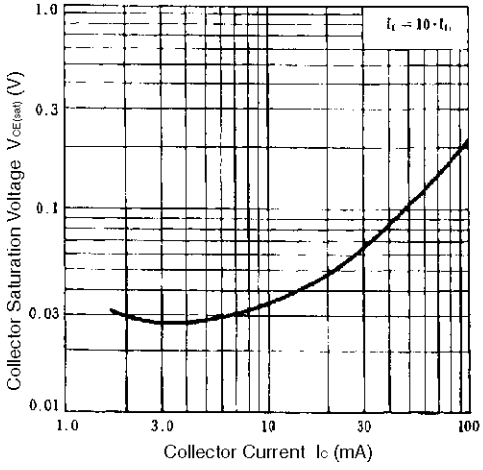
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



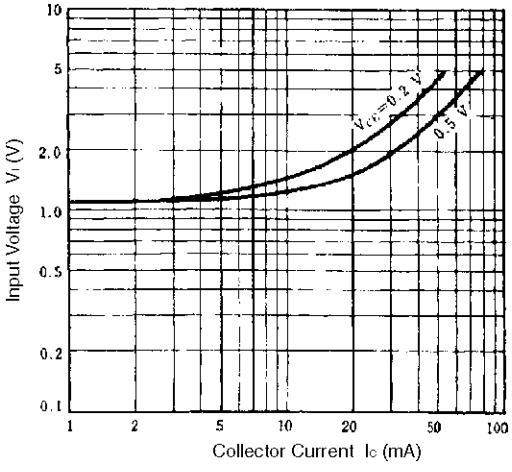
DC CURRENT GAIN vs. COLLECTOR CURRENT



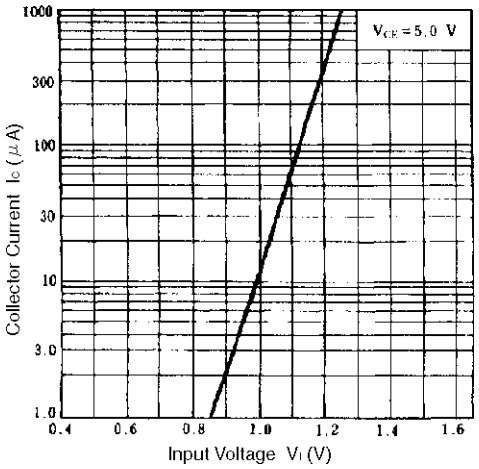
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



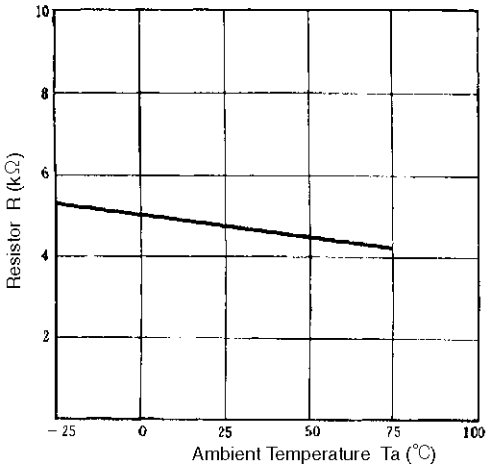
INPUT VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs.
INPUT VOLTAGE



RESISTOR vs.
AMBIENT TEMPERATURE



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