

**Phase-out/Discontinued**

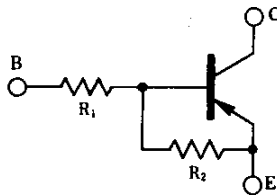
# COMPOUND TRANSISTOR BN1L3M

**on-chip resistor PNP silicon epitaxial transistor  
For mid-speed switching**

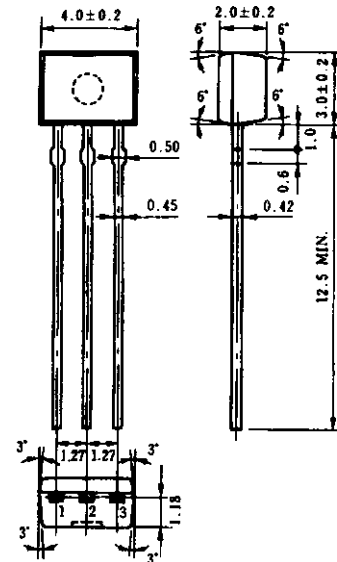
### FEATURES

- On-chip bias resistor  
( $R_1 = 4.7 \text{ k}\Omega$ ,  $R_2 = 4.7 \text{ k}\Omega$ )

- Complementary transistor with BA1L3M



### PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Emitter
2. Collector
3. Base

### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

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	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*  $PW \leq 10 \text{ ms}$ , duty cycle  $\leq 50 \%$

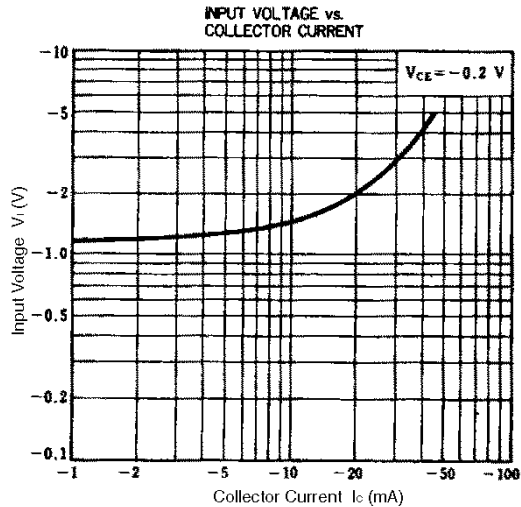
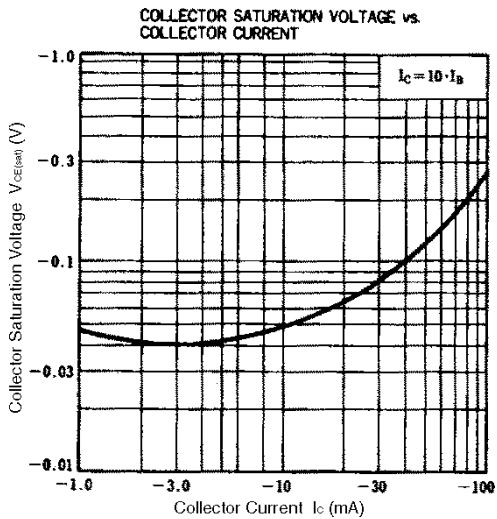
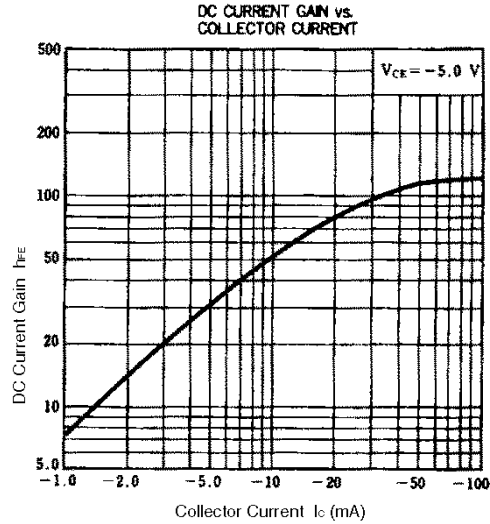
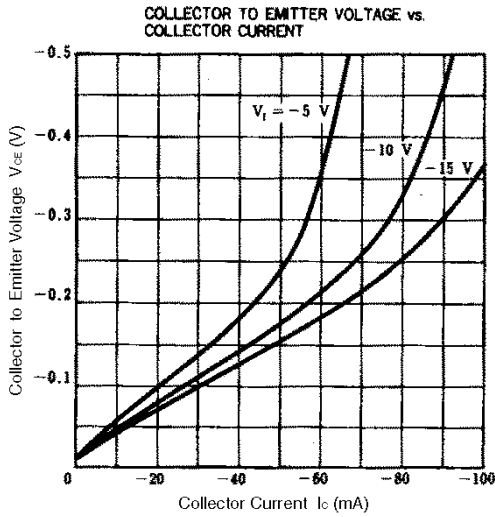
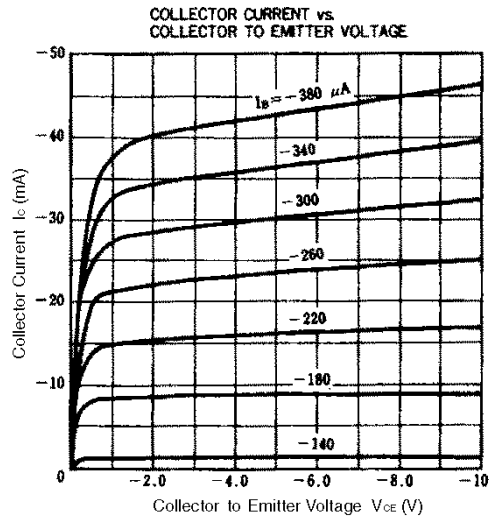
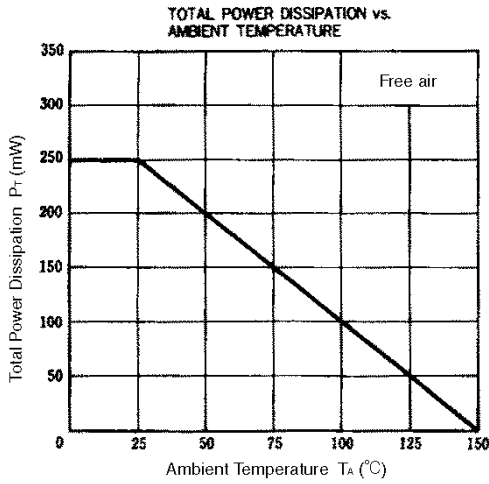
### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

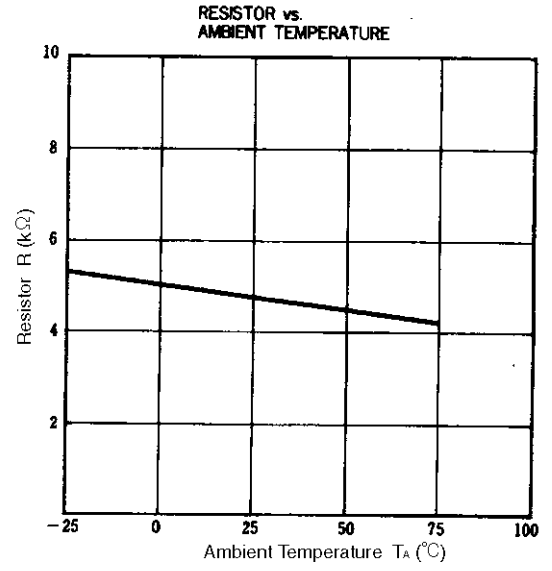
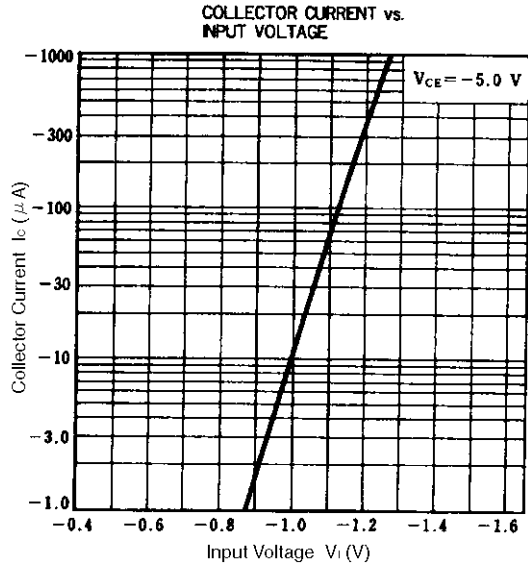
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -50 \text{ V}$ , $I_E = 0$			-100	nA
DC current gain	$h_{FE1}$ **	$V_{CE} = -5.0 \text{ V}$ , $I_C = -5.0 \text{ mA}$	20	40	80	-
DC current gain	$h_{FE2}$ **	$V_{CE} = -5.0 \text{ V}$ , $I_C = -50 \text{ mA}$	70	110		-
Collector saturation voltage	$V_{CE(sat)}$ **	$I_C = -5.0 \text{ mA}$ , $I_B = -0.25 \text{ mA}$		-0.02	-0.3	V
Low level input voltage	$V_{IL}$ **	$V_{CE} = -5.0 \text{ V}$ , $I_B = -100 \mu\text{A}$		-1.1	-0.8	V
High level input voltage	$V_{IH}$ **	$V_{CE} = -0.2 \text{ V}$ , $I_C = -5.0 \text{ mA}$	-30	-1.5		V
Input resistance	$R_1$		3.29	4.7	6.11	$\text{k}\Omega$
Resistance ratio	$R_2/R_1$		0.9	10	1.1	-
Turn-on time	$t_{on}$	$V_{CC} = -5 \text{ V}$ , $R_L = 1 \text{ k}\Omega$			0.5	$\mu\text{s}$
Storage time	$t_{stg}$	$V_i = -5 \text{ V}$ , $PW = 2 \mu\text{s}$			3.0	$\mu\text{s}$
Turn-off time	$t_{off}$	duty cycle $\leq 2 \%$			5.0	$\mu\text{s}$

\*\*  $PW \leq 350 \mu\text{s}$ , duty cycle  $\leq 2 \%$

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TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )





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