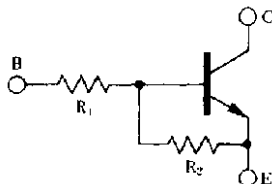


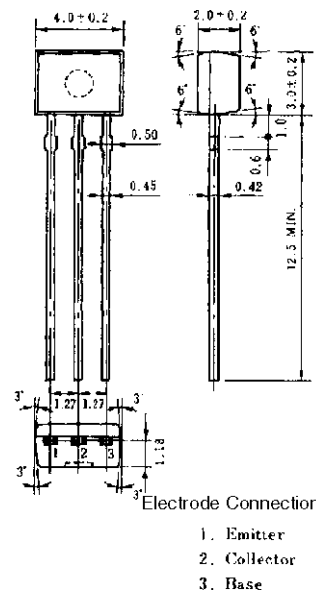
on-chip resistor NPN silicon epitaxial transistor
For mid-speed switching

FEATURES

- On-chip bias resistor
($R_1 = 4.7\text{ k}\Omega$, $R_2 = 4.7\text{ k}\Omega$)
- Complementary transistor with BN1L3M



PACKAGE DRAWING (UNIT: mm)



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 $\leq 50\%$

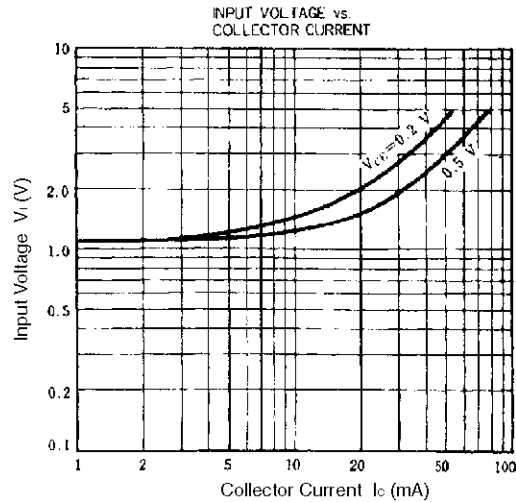
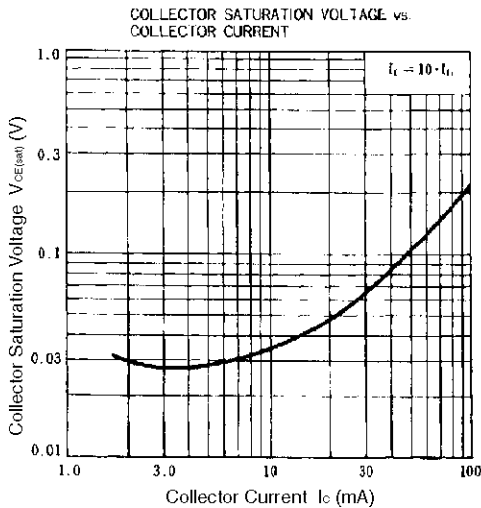
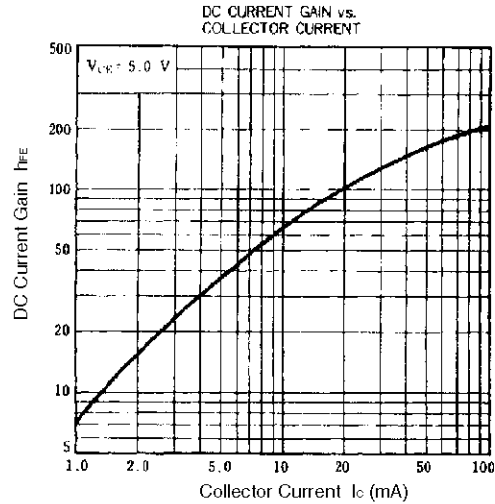
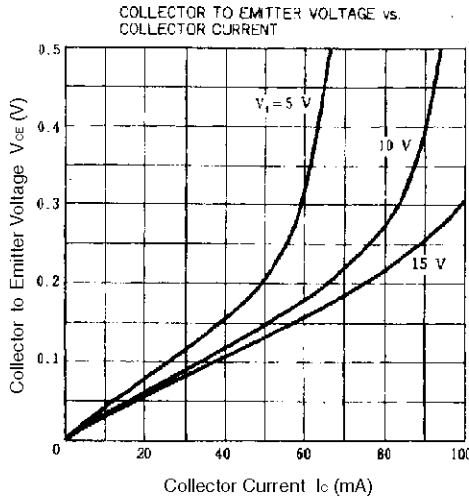
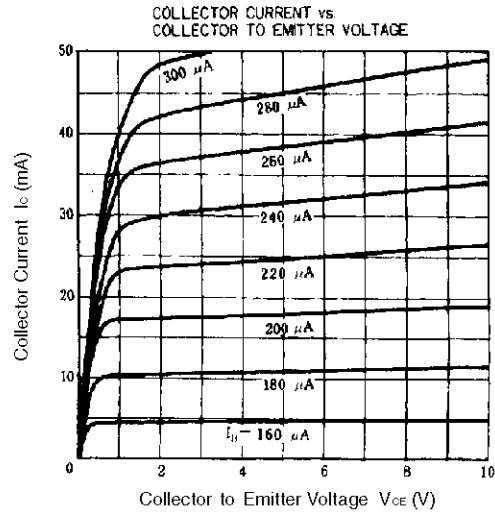
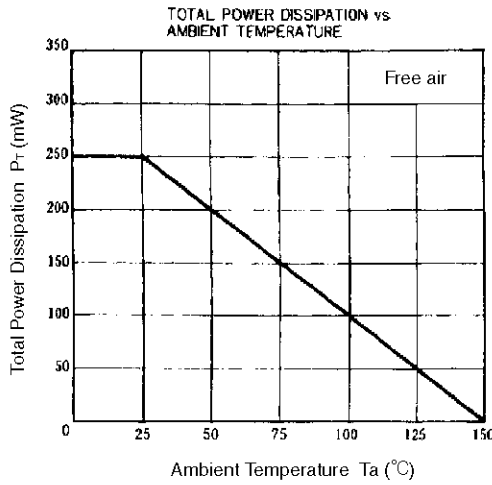
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

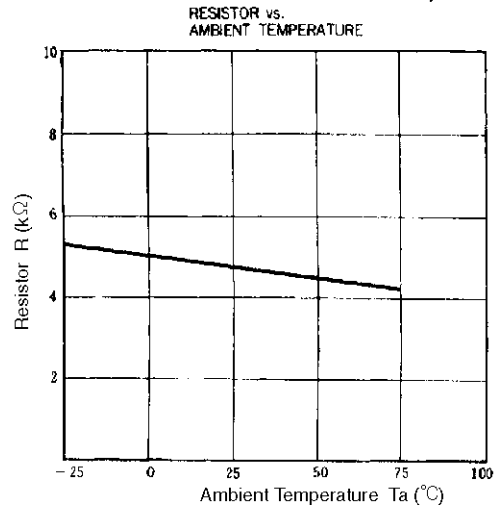
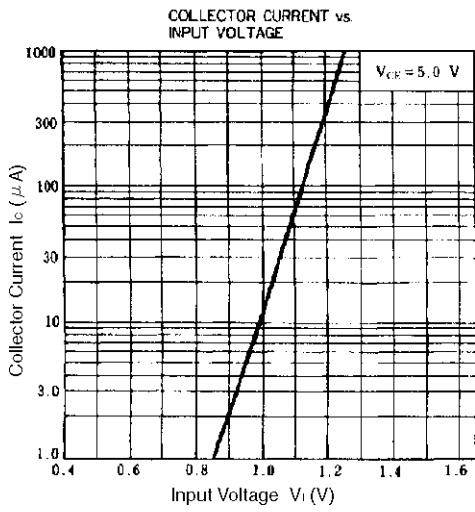
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 50\text{ V}$, $I_E = 0$			100	nA
DC current gain	h_{FE1} **	$V_{CE} = 5.0\text{ V}$, $I_C = 5.0\text{ mA}$	20	40	80	-
DC current gain	h_{FE2} **	$V_{CE} = 5.0\text{ V}$, $I_C = 50\text{ mA}$	70	140		-
Collector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

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

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





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