

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-8005
FAX: (973) 376-8860

2N4937

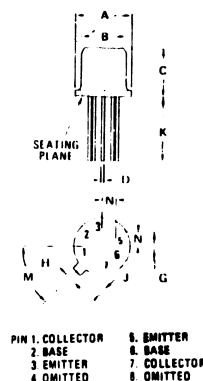
DUAL
AMPLIFIER TRANSISTOR

PNP SILICON

PACKAGE OUTLINE DIMENSIONS

MAXIMUM RATINGS

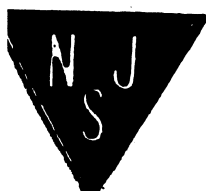
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector 1 to Collector 2 Voltage Voltage Rating and Lead to Case	V_{C1C2}	± 200 ± 200	Vdc
Collector-Base Voltage	V_{CBO}	50	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Base Current	I_B	10	mAdc
Collector Current — Continuous	I_C	50	mAdc
		One Die	Both Die
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ — Ceramic Metal Can Derate above 25°C — Ceramic Metal Can	P_D	250 500 1.5 2.9	350 600 2.0 3.4 mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C Metal Can	P_D	1.2 8.85	2.0 11.42 Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$



DIM	MIN	MAX	MIN	MAX
A	8.51	9.40	0.335	0.370
B	7.75	8.51	0.305	0.335
C	3.81	4.70	0.150	0.185
D	0.41	0.53	0.016	0.021
E	5.08 BSC		0.200 BSC	
F	0.71	0.86	0.028	0.034
G	0.74	1.14	0.029	0.045
H	12.70		0.500	
I	45.0 BSC		45.0 BSC	
J	2.54 BSC		0.100 BSC	

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ($I_C = 10 \text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$	40	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	50	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 40 \text{ Vdc}, I_E = 0$)	I_{CBO}	—	20	nAdc
Emitter Cutoff Current ($V_{BE} = 3.0 \text{ Vdc}, I_C = 0$)	I_{EBO}	—	20	nAdc
ON CHARACTERISTICS				
DC Current Gain ($I_C = 100 \mu\text{Adc}, V_{CE} = 10 \text{ Vdc}$) ($I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$) ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	h_{FE}	40 50 50	200 250 250	—



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product ($I_C = 10 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 100 \text{ MHz}$)	f_T	300	900	MHz
Output Capacitance ($V_{CB} = 10 \text{ V}$, $I_E = 0$, $f = 140 \text{ kHz}$) Emitter Guarded	C_{cb}	—	5.0	pF
Input Impedance ($I_E = 0.5 \text{ V}$, $I_C = 0$, $f = 140 \text{ kHz}$) Collector Guarded	C_{eb}	—	10	pF
Input Impedance ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 1.0 \text{ kHz}$)	h_{ie}	1.0	10	k Ω
Voltage Feedback Ratio ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 1.0 \text{ kHz}$)	h_{re}	—	10	$\times 10^{-4}$
Small-Signal Current Gain ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 1.0 \text{ kHz}$)	h_{fe}	50	—	—
Output Admittance ($I_C = 1.0 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 1.0 \text{ kHz}$)	h_{oe}	5.0	50	μmhos
Noise Figure ($I_C = 100 \mu\text{A}$, $V_{CE} = 10 \text{ V}$, $R_S = 3.0 \text{ k}\Omega$, $f = 10 \text{ Hz to } 15.7 \text{ kHz}$)	NF	—	4.0	dB

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
MATCHING CHARACTERISTICS				
DC Current Gain Ratio(1) ($I_C = 100 \mu\text{A}$ to 1.0 mA , $V_{CE} = 10 \text{ V}$) ($I_C = 100 \mu\text{A}$ to 1.0 mA , $V_{CE} = 10 \text{ V}$, $T_A = -55^\circ\text{C}$ to 125°C)	h_{FE1}/h_{FE2}	0.9 0.85	1.0 1.0	—
Base-Emitter Voltage Differential ($I_C = 100 \mu\text{A}$ to 1.0 mA , $V_{CE} = 10 \text{ V}$)	$ V_{BE1} - V_{BE2} $	—	3.0	mVdc
Base-Emitter Voltage Differential Gradient ($I_C = 100 \mu\text{A}$ to 1.0 mA , $V_{CE} = 10 \text{ V}$, $T_A = 25^\circ\text{C}$ to $+125^\circ\text{C}$) ($I_C = 100 \mu\text{A}$ to 1.0 mA , $V_{CE} = 10 \text{ V}$, $T_A = -55^\circ\text{C}$ to 25°C)	$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T_A}$	— — —	1.0 0.8	mVdc

(1) The lowest h_{FE} reading is taken as h_{FE1} for this ratio.