

2N5160

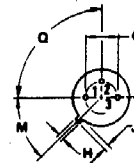
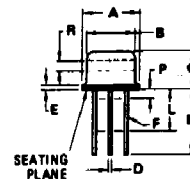
The RF Line

PNP SILICON RF POWER TRANSISTORS

... designed for amplifier, frequency multiplier or oscillator applications in military and industrial equipment. Suitable for use as Class A, B, or C output driver, or pre-driver stages in VHF and UHF.

- High Power Gain – $G_{pE} = 8.0$ dB (Min) @ $f = 400$ MHz, 14.5 dB (Typ) @ 175 MHz – No Emitter Tuning
- Power Output – $P_{out} = 1.0$ Watt (Min) @ $f = 400$ MHz = 1.5 Watt (Typ) @ $f = 175$ MHz
- Resists Burnout When Load is Shorted or Opened
- Designed for Use in Complementary Circuits with 2N3866

PNP SILICON AMPLIFIER TRANSISTOR



STYLE 1:
 PIN 1. EMITTER
 2. BASE
 3. COLLECTOR

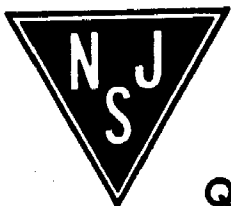
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CB}	60	Vdc
Emitter-Base Voltage	V_{EB}	4.0	Vdc
Collector Current	I_C	0.4	Adc
Total Device Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	5.0 28.6	Watts mW/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ C$

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.884	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	—	0.500	—
L	6.35	—	0.250	—
M	45 $^\circ$ NOM	45 $^\circ$ NOM	—	—
P	—	1.27	—	0.050
Q	90 $^\circ$ NOM	90 $^\circ$ NOM	—	—
R	2.54	—	0.100	—

All JEDEC dimensions and notes apply.

CASE 79-02
 TO-38



2N5160

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage ($I_C = 5.0 \text{ mA dc}$, $I_B = 0$)	$V_{(BR)CEO(sus)}$	40	-	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = 0.1 \text{ mA dc}$, $I_C = 0$)	$V_{(BR)EBO(sus)}$	4.0	-	-	Vdc
Collector Cutoff Current ($V_{CE} = 28 \text{ Vdc}$, $I_B = 0$)	I_{CEO}	-	-	20	$\mu\text{A dc}$
Collector Cutoff Current ($V_{CE} = 60 \text{ Vdc}$, $V_{BE} = 0$)	I_{CES}	-	-	0.1	mA dc
Collector Cutoff Current ($V_{CB} = 28 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	-	-	1.0	$\mu\text{A dc}$
ON CHARACTERISTICS					
DC Current Gain ($I_C = 50 \text{ mA dc}$, $V_{CE} = 5.0 \text{ Vdc}$)	h_{FE}	10	-	-	-
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product ($I_C = 50 \text{ mA dc}$, $V_{CE} = 15 \text{ Vdc}$, $f = 200 \text{ MHz}$)	f_T	500	900	-	MHz
Collector-Base Capacitance ($V_{CB} = 28 \text{ Vdc}$, $I_E = 0$, $f = 0.1$ to 1.0 MHz)	C_{cb}	-	2.5	4.0	pF
FUNCTIONAL TESTS					
Common-Emitter Amplifier Power Gain ($V_{CE} = 28 \text{ Vdc}$, $P_{in} = 0.16 \text{ Watt}$, $f = 400 \text{ MHz}$) ($V_{CE} = 28 \text{ Vdc}$, $P_{in} = 50 \text{ mW}$, $f = 175 \text{ MHz}$)	G_{PE}	8.0	8.8	-	dB
Power Output ($V_{CE} = 28 \text{ Vdc}$, $P_{in} = 0.16 \text{ Watt}$, $f = 400 \text{ MHz}$) ($V_{CE} = 28 \text{ Vdc}$, $P_{in} = 50 \text{ mW}$, $f = 175 \text{ MHz}$)	P_{out}	1.0	1.2	-	Watt
Collector Efficiency ($V_{CE} = 28 \text{ Vdc}$, $P_{in} = 0.16 \text{ Watt}$, $f = 400 \text{ MHz}$)	η	45	55	-	%

FIGURE 1 - 400-MHz TEST CIRCUIT

