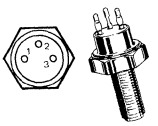
2N5161 (SILICON)
2N5162



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

CASE 36
(TO-60)

Case common to emitter

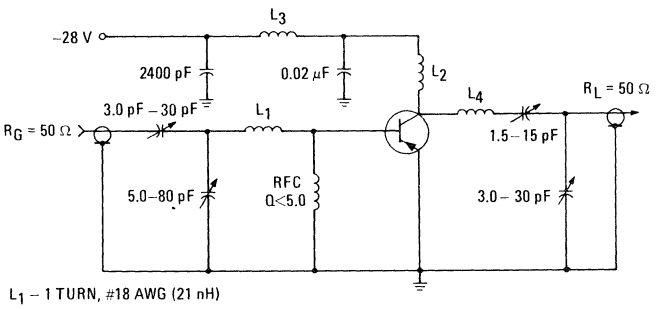
PNP silicon RF power transistors designed for amplifier or oscillator applications in military and industrial equipment. Suitable for use as Class B or C output or power oscillator in VHF applications

MAXIMUM RATINGS

Rating	Symbol	2N5161	2N5162	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	1.5	5.0	Adc
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	20 0.114	50 0.286	Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

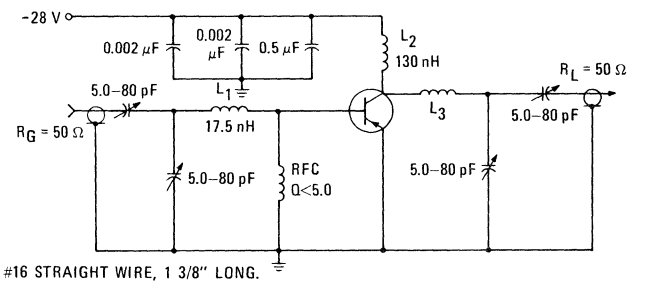
FIGURE 1 – 175 MHz TEST CIRCUITS

1a – 2N5161



L_1 – 1 TURN, #18 AWG (21 nH)
L_2, L_3 – 0.33 μH RFC
L_4 – 4 TURNS, #16 AWG, ½" I.D. (200 nH)

1b – 2N5162



L_1 – #16 STRAIGHT WIRE, 1 3/8" LONG.
L_2 – 5 TURNS #20 AWG, 1/2" LONG.
L_3 – 1 TURN #18 AWG WIRE.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Sustaining Voltage* (I_C = 200 mAdc, I_B = 0)		$V_{CEO(sus)}$*	40	-	-	Vdc
Emitter-Base Breakdown Voltage		BV_{EBO}				Vdc
(I_E = 1.0 mAdc, I_C = 0)	2N5161		4.0	-	-	
(I_E = 5.0 mAdc, I_C = 0)	2N5162		4.0	-	-	
Collector Cutoff Current		I_{CES}				mAdc
(V_{CE} = 60 Vdc, V_{BE} = 0)	2N5161		-	-	0.5	
	2N5162		-	-	1.0	
(V_{CE} = 28 Vdc, V_{BE} = 0, T_C = 200°C)	2N5161		-	-	5.0	
	2N5162		-	-	10	
Collector Cutoff Current		I_{CBO}				mAdc
(V_{CB} = 28 Vdc, I_E = 0)	2N5161		-	-	0.1	
	2N5162		-	-	0.2	
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				-
(I_C = 250 mAdc, V_{CE} = 5.0 Vdc)	2N5161		10	-	-	
(I_C = 2.0 Adc, V_{CE} = 5.0 Vdc)	2N5162		10	-	-	
DYNAMIC CHARACTERISTICS						
Current-Gain-Bandwidth Product		f_T				MHz
(I_C = 200 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	2N5161		-	500	-	
(I_C = 500 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	2N5162		-	500	-	
Collector-Base Capacitance		C_{cb}				pF
(V_{CB} = 28 Vdc, I_E = 0, f = 0.1 to 1.0 MHz)	2N5161		-	10	15	
	2N5162		-	45	60	
FUNCTIONAL TEST						
Common-Emitter Amplifier Power Gain		G_{PE}				dB
(V_{CC} = 28 Vdc, P_{out} = 7.5 Watts, f = 175 MHz)	2N5161		8.75	10.3	-	
(V_{CC} = 28 Vdc, P_{out} = 30 Watts, f = 175 MHz)	2N5162		6.0	7.0	-	
Power Output		P_{out}				Watts
(V_{CC} = 28 Vdc, P_{in} = 1.0 Watt, f = 175 MHz)	2N5161		7.5	8.5	-	
(V_{CC} = 28 Vdc, P_{in} = 7.5 Watts, f = 175 MHz)	2N5162		30	35	-	
Collector Efficiency		η				%
(V_{CC} = 28 Vdc, P_{out} = 7.5 Watts, f = 175 MHz)	2N5161		45	-	-	
(V_{CC} = 28 Vdc, P_{out} = 30 Watts, f = 175 MHz)	2N5162		55	-	-	

* Pulsed through 25 mH inductor

2N5161 DESIGN DATA

FIGURE 2 – POWER OUTPUT versus FREQUENCY

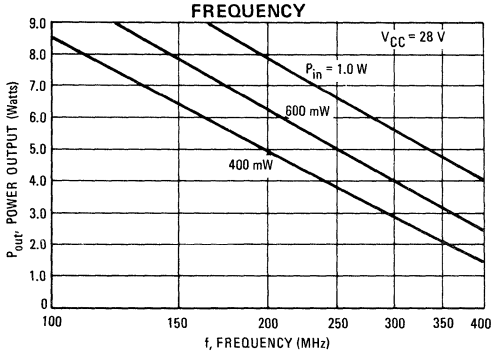
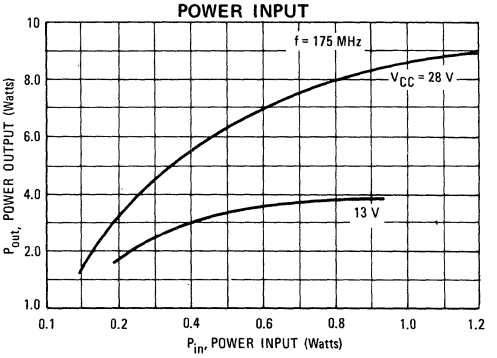


FIGURE 3 – POWER OUTPUT versus POWER INPUT



LARGE SIGNAL IMPEDANCE DATA

FIGURE 4 – REAL SERIES INPUT RESISTANCE versus FREQUENCY

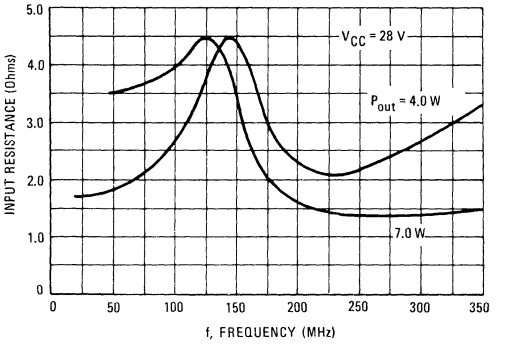


FIGURE 5 – IMAGINARY SERIES INPUT REACTANCE versus FREQUENCY

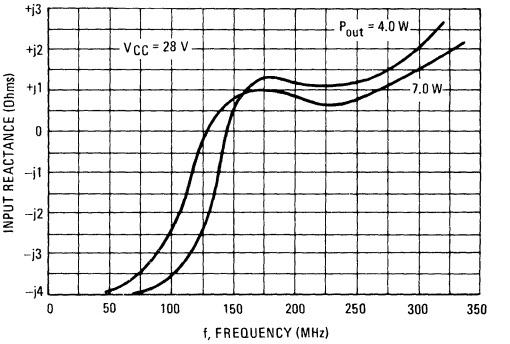
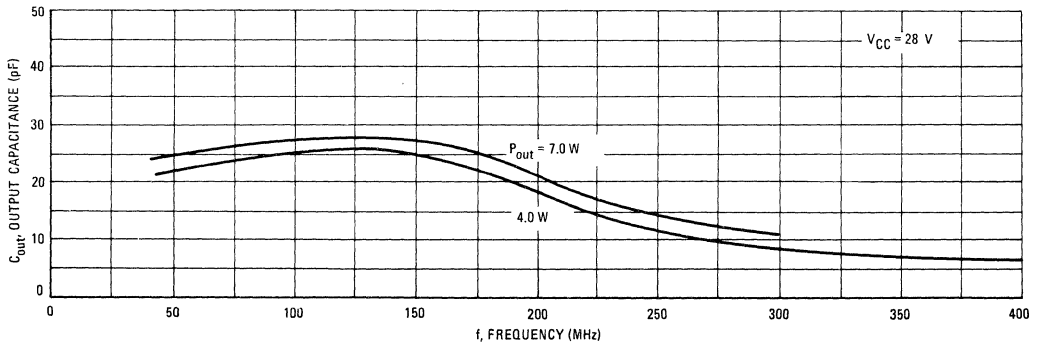


FIGURE 6 – OUTPUT CAPACITANCE versus FREQUENCY



2N5162 DESIGN DATA

FIGURE 7 – POWER OUTPUT versus FREQUENCY

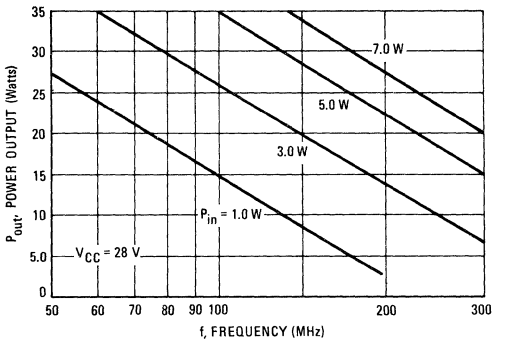
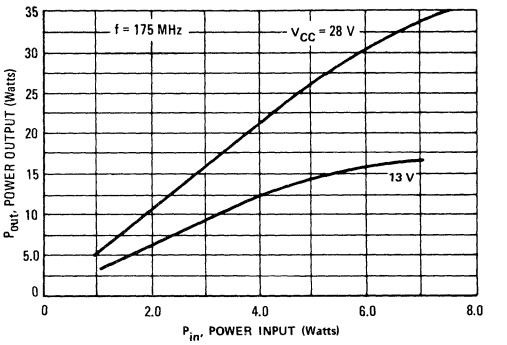


FIGURE 8 – POWER OUTPUT versus POWER INPUT



LARGE SIGNAL IMPEDANCE DATA

FIGURE 9 – REAL SERIES INPUT RESISTANCE versus FREQUENCY

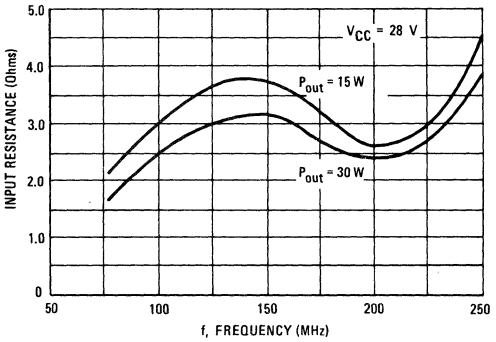


FIGURE 10 – IMAGINARY SERIES INPUT REACTANCE versus FREQUENCY

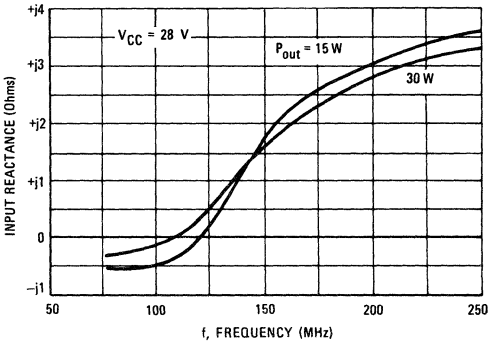


FIGURE 11 – OUTPUT CAPACITANCE versus FREQUENCY