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2N6080

4.0 W – 175 MHz

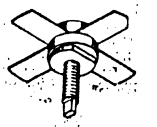
RF POWER TRANSISTOR

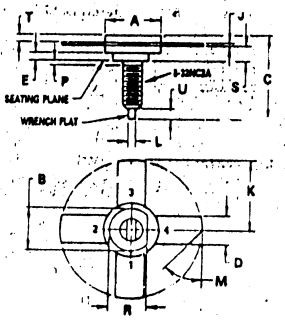
NPN SILICON

NPN SILICON RF POWER TRANSISTOR

designed for 12.5 Volt VHF large signal power amplifier applications required in military and industrial equipment operating to 300 MHz.

- Specified 12.5 Volt, 175 MHz Characteristics –
  Output Power = 4.0 W
  Minimum Gain = 12 dB
  Efficiency = 50%
- Characterized with Series Equivalent Large Signal Impedance Parameters





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

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	9.40	9.78	0.370	0.385
B	8.13	8.38	0.320	0.330
C	17.02	20.07	0.670	0.790
D	5.46	5.97	0.215	0.235
E	1.78	—	0.070	—
J	0.08	0.18	0.003	0.007
K	12.45	—	0.490	—
L	1.40	1.78	0.055	0.070
M	45° NOM		45° NOM	
P	—	1.27	—	0.050
R	7.59	7.80	0.299	0.307
S	4.01	4.52	0.158	0.178
T	2.11	2.54	0.083	0.100
U	2.49	3.35	0.098	0.132

*MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	18	Vdc
Collector-Base Voltage	V_{CBO}	36	Vdc
Emitter-Base Voltage	V_{EBO}	4.0	Vdc
Collector Current – Continuous	I_C	1.0	Adc
Total Device Dissipation @ T_C = 25°C (2) Derate above 25°C	P_D	12 68.5	Watts mW/°C
Storage Temperature Range	T_{stg}	-65 to +200	°C
Stud Torque (1)		6.5	in. lb

*Indicates JEDEC Registered Data.
(1) For repeated assembly use 5 in lb
(2) These devices are designed for RF operation. The total device dissipation rating applies only when the devices are operated as RF amplifiers.

2N6080 (SILICON)

NPN SILICON RF POWER TRANSISTORS

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage		BV_{CEO}				Vdc
(I_C = 10 mAdc, I_B = 0)	2N6080		18	–	–	
(I_C = 20 mAdc, I_B = 0)	2N6081		18	–	–	
Collector-Emitter Breakdown Voltage		BV_{CES}				Vdc
(I_C = 5.0 mAdc, V_{BE} = 0)	2N6080		36	–	–	
(I_C = 10 mAdc, V_{BE} = 0)	2N6081		36	–	–	
Emitter-Base Breakdown Voltage		BV_{EBO}				Vdc
(I_E = 1.0 mAdc, I_C = 0)	2N6080		4.0	–	–	
(I_E = 2.0 mAdc, I_C = 0)	2N6081		4.0	–	–	
Collector Cutoff Current		I_{CES}				mAdc
(V_{CE} = 15 Vdc, V_{BE} = 0, T_C = 155°C)	2N6080		–	–	5.0	
	2N6081		–	–	8.0	
Collector Cutoff Current		I_{CBO}				mAdc
(V_{CB} = 15 Vdc, I_E = 0)	2N6080		–	–	0.25	
	2N6081		–	–	0.5	
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				–
(I_C = 0.25 Adc, V_{CE} = 5.0 Vdc)	2N6080		5.0	–	–	
(I_C = 0.5 Adc, V_{CE} = 5.0 Vdc)	2N6081		5.0	–	–	
DYNAMIC CHARACTERISTICS						
Output Capacitance		C_{ob}				pF
(V_{CB} = 15 Vdc, I_E = 0, f = 0.1 MHz)	2N6080		–	15	20	
	2N6081		–	70	85	
FUNCTIONAL TEST						
Common-Emitter Amplifier Power Gain		G_{PE}				dB
(P_{out} = 4.0 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	2N6080		12	–	–	
(P_{out} = 15 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	2N6081		6.3	–	–	
Collector Efficiency		η				%
(P_{out} = 4.0 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	2N6080		50	–	–	
(P_{out} = 15 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	2N6081		50	–	–	

*Indicates JEDEC Registered Data

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	18	–	–	Vdc
Collector-Emitter Breakdown Voltage (I_C = 5.0 mAdc, V_{BE} = 0)	$V_{(BR)CES}$	36	–	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 1.0 mAdc, I_C = 0)	$V_{(BR)EBO}$	4.0	–	–	Vdc
Collector Cutoff Current (V_{CE} = 15 Vdc, V_{BE} = 0, T_C = +55°C)	I_{CES}	–	–	5.0	mAdc
Collector Cutoff Current (V_{CB} = 15 Vdc, I_E = 0)	I_{CBO}	–	–	0.25	mAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 0.25 Adc, V_{CE} = 5.0 Vdc)	h_{FE}	5.0	–	–	–
DYNAMIC CHARACTERISTICS					
Output Capacitance (V_{CB} = 15 Vdc, I_E = 0, f = 0.1 MHz)	C_{ob}	–	15	20	pF
FUNCTIONAL TEST					
Common-Emitter Amplifier Power Gain (P_{out} = 4.0 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	G_{PE}	12	–	–	dB
Collector Efficiency (P_{out} = 4.0 W, V_{CC} = 12.5 Vdc, f = 175 MHz)	η	50	–	–	%