

NTE470 Silicon NPN Transistor RF Power Output

Description:

The NTE470 is a silicon NPN RF transistor in a W52 type package designed primarily for application as a high-power linear amplifier from 2.0 to 30MHz.

Features:

- Specified 12.5V, 30MHz Characteristics:
 Output Power = 100W (PEP)
 Minimum Gain = 10dB
 Efficiency = 40%
- Intermodulation Distortion @ 100W (PEP): IMD = -30dB Min
- 100% Tested for Load Mismatch at all Phase Angles with 30:1 VSWR

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	20V
Collector-Base Voltage, V_{CBO}	45V
Emitter-Base Voltage, V_{EBO}	3V
Continuous Collector Current, I_C	20A
Withstand Current (10s)	30A
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	290W
Derate Above 25°C	1.66W/ $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	0.6 $^\circ\text{C/W}$

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50\text{mA}$, $I_B = 0$	20	—	—	V
	$V_{(BR)CES}$	$I_C = 200\text{mA}$, $V_{BE} = 0$	45	—	—	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 200\text{mA}$, $I_E = 0$	45	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\text{mA}$, $I_C = 0$	3	—	—	V
Collector Cutoff Current	I_{CES}	$V_{CE} = 16\text{V}$, $V_{BE} = 0$, $T_C = +25^\circ\text{C}$	—	—	10	mA

Electrical Characteristics (Cont'd): ($T_C = +25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	$I_C = 5\text{A}, V_{CE} = 5\text{V}$	10	30	—	
Dynamic Characteristics						
Output Capacitance	C_{ob}	$V_{CB} = 12.5\text{V}, I_E = 0, f = 1\text{MHz}$	—	650	800	pF
Functional Tests						
Common-Emitter Amplifier Power Gain	G_{PE}	$V_{CC} = 12.5\text{V}, P_{out} = 100\text{W},$ $I_{C(max)} = 10\text{A}, I_{CQ} = 150\text{mA},$ $f = 30, 30.001\text{MHz}$	10	12	—	dB
Collector Efficiency	η		40	—	—	%
Intermodulation Distortion (Note 1)	IMD		—	−33	−30	dB

Note 1. To proposed EIA method of measurement. Reference peak envelope power.

