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NTE486
Silicon NPN Transistor
RF High Frequency Amplifier

Description:

The NTE486 is a silicon NPN high frequency RF transistor in a TO39 type package designed for use in 12.5V UHF large–signal applications required in industrial equipment.

Features:

- Specified 12.5V, 470MHz Characteristics:
  Output Power = 0.75W
  Minimum Gain = 8dB
  Effeciency = 50%
- S Parameter Data from 100MHz to 1GHz

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 20V
Collector–Base Voltage, V_{CBO} 35V
Emitter–Base Voltage, V_{EBO} 4V
Continuous Collector Current, I_C 150mA
Total Device Dissipation (T_C = +25°C), P_D 2.5W
Derate Above 25°C . . . . . 14.3mW/°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 5mA, I_B = 0	20	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0	35	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100μA, I_C = 0	4	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 15V, I_B = 0	–	–	10	μA
ON Characteristics						
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 50mA	20	60	150	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 50mA, I_B = 5mA	–	–	0.5	V

Electrical Characteristics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 100mA, f = 200MHz	1800	2000	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 12.5V, I_E = 0, f = 1MHz	–	3.5	4.0	pF
Functional Tests						
Common–Emitter Amplifier Power Gain	G_{PE}	V_{CC} = 12.5V, P_O = 0.75W, f = 470MHz	8.0	8.5	–	dB
Collector Efficiency	η		50	70	–	%
Series Equivalent Input Impedance	Z_{in}		–	14+j4.0	–	Ω
Series Equivalent Output Impedance	Z_{out}		–	28–j38	–	Ω