ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE346
Silicon NPN Transistor
RF Power Transistor

Description:

The NTE346 is a silicon NPN transistor in a TO39 type package designed for amplifier, frequency multiplier, or oscillator applications in military and industrial equipment. Suitable for use as output driver or pre–driver stages, in VHF and UHF equipment.

Features:

- Current–Gain–Bandwidth Product–f_T = 500MHz (Min) @ I_C = 50mAdc
- Power Gain–G_{pe} = 10dB (Min) @ V_{CE} =12Vdc
- 1 Watt Minimum Power Output @ f = 175MHz
- Multiple–Emitter Construction for Excellent High–Frequency Performance

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 20V
Collector–Base Voltage, V_{CB} 40V
Emitter–Base Voltage, V_{EB} 2.0V
Collector Current–Continuous, I_C 400mA
Base Current–Continuous. I_B 400mA
Total Device Dissipation (T_A = +25°C), P_D 1.0W
Derate above 25°C . . . . . 5.71mW/°C
Total Device Dissipation (T_C = +25°C), P_D 3.5Wa
Derate above 25°C . . . . . 20mW/°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 Sustaining Voltage	$V_{CEO(sus)}$	I_C = 5mA, I_B = 0	20	–	–	V
	$V_{CER(sus)}$	I_C = 5mA, R_{BE} = 10Ω	40	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 12V, I_B = 0	–	–	0.02	mA
	I_{CEV}	V_{CE} = 40V, V_{BE} = –1.5V	–	–	0.1	mA
		V_{CE} = 12V, V_{BE} = –1.5V, T_C = +150°C	–	–	5.0	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 2V, I_C = 0	–	–	0.1	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	I_C = 100mA, V_{CE} = 5V	10	–	200	
		I_C = 360mA, V_{CE} = 5V	5	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 100mA, I_B = 20mA	–	–	0.5	V
Dynamic Characteristics						
Current–Gain Bandwidth Product	f_T	I_C = 50mA, V_{CE} = 15V, f = 1MHz	500	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 12V, I_E = 0, f = 1MHz	–	–	4	pF
Functional Test						
Power Input	P_{in}	P_{out} = 1W, Z_S = 50Ω, V_{CC} = 12V, f = 175MHz	–	–	100	W
Collector Efficiency	η		50	–	–	%
Common–Emitter Amplifier Power Gain	G_{pe}	P_{in} = 100mW, Z_S = 50Ω, V_{CC} = 12V, f = 175MHz	10	–	–	dB