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NTE339
Silicon NPN Transistor
RF Power Output

Description:

The NTE339 is a 12.5 volt epitaxial silicon NPN planar transistor designed primarily for use in large–signal amplifier stages in industrial communications equipment operating at frequencies to 80MHz.

- Specified 12.5 Volt, 50MHz Characteristics
  Output Power = 40 Watts
  Minimum Gain = 7.5dB
  Efficiency = 50%

Absolute Maximum Ratings: (T_C = +25°C unless otherwise specified)

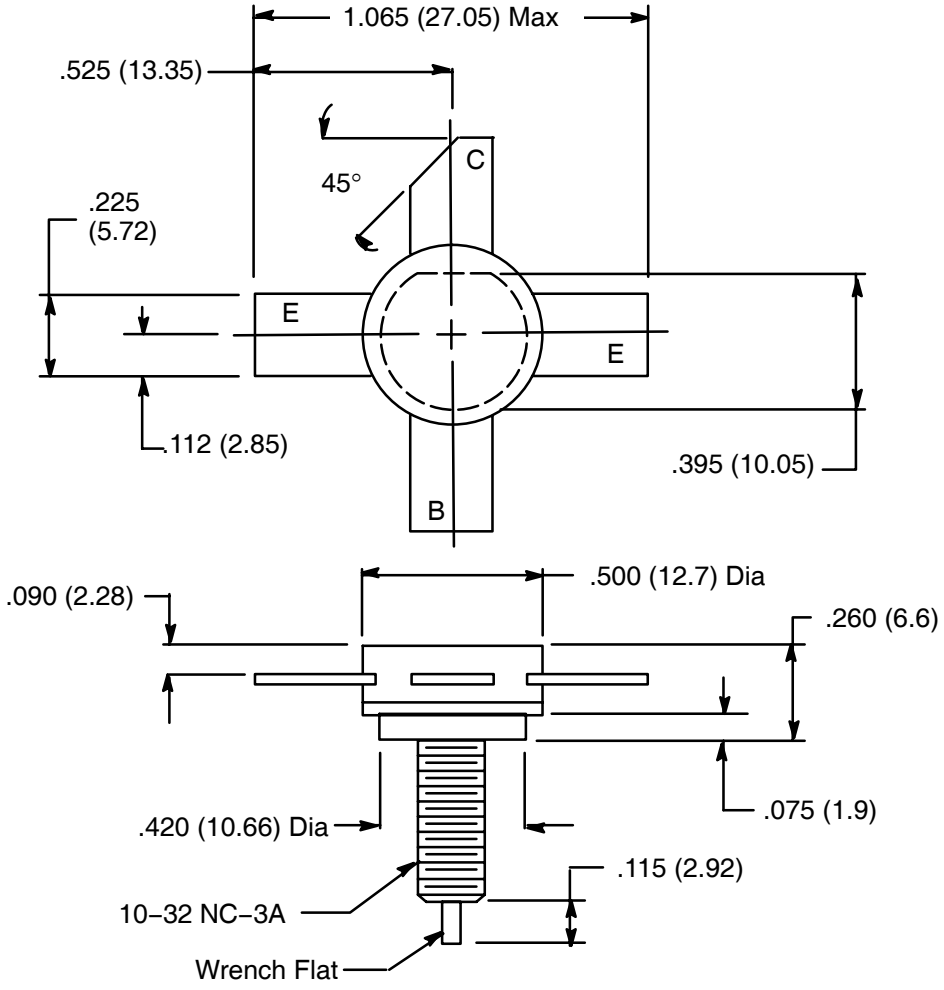
Collector–Base Voltage, V_{CBO} 48V
Collector–Emitter Voltage, V_{CEO} 24V
Emitter–Base Voltage, V_{EBO} 4V
Continuous Collector Current, I_C 7A
Total Device Dissipation (T_C = +25°C), P_{tot} 100W
Derate Above 25°C . . . . . 571mW/°C
Operating Junction Temperature, T_j . . . . . +200°C
Storage Temperatures Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.55°C/W

Note 1. This device is designed for RF operation. The total device dissipation rating applies only when the device is operated as an RF amplifier.

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 = 200mA, I_B = 0, Note 2	24	–	–	V
	$V_{(BR)CES}$	I_C = 100mA, V_{BE} = 0, Note 2	48	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = 0, I_E = 10mA	4	–	–	V
Collector Cutoff Current	I_{CBO}	V_{CB} = 15V, I_E = 0	–	–	1.0	mA
	I_{CES}	V_{CB} = 15V, I_E = 0, T_A = +125°C	–	–	10	mA
ON Characteristics						
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 2.4A	3	7	–	
Dynamic Characteristics						
Output Capacitance	C_{ob}	V_{CB} = 12.5V, I_E = 0, f = 0.1 to 1.0MHz	–	180	230	pF
Functional Test						
Common–Emitter Amplifier Power Gain	G_{PE}	P_{OUT} = 40W, V_{CC} = 12.5V, f = 50MHz	7.5	–	–	dB
Collector Efficiency	η		50	–	–	%

Note 2. Pulsed through 25mH inductor.


1.065 (27.05) Max
.525 (13.35)
C
45°
.225
(5.72)
E
E
.112 (2.85)
.395 (10.05)
B
.500 (12.7) Dia
.090 (2.28)
.260 (6.6)
.075 (1.9)
.420 (10.66) Dia
.115 (2.92)
10–32 NC–3A
Wrench Flat