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

Collector-Base Voltage, V_{CB0}	48V
Collector-Emitter Voltage, V_{CEO}	24V
Emitter-Base Voltage, V_{EBO}	4V
Continuous Collector Current, I_C	7A
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_{tot}	100W
Derate Above 25°C	571mW/ $^\circ\text{C}$
Operating Junction Temperature, T_j	+200 $^\circ\text{C}$
Storage Temperatures Range, T_{stg}	-65 $^\circ$ to +150 $^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	1.55 $^\circ\text{C}/\text{W}$

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

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

Note 2. Pulsed through 25mH inductor.

