

NTE78 Silicon NPN Transistor RF Power Output

Description:

The NTE78 is a silicon NPN epitaxial planer type transistor designed for use as 3 to 4 watt RF power amplifiers in HF band mobile radio applications.

Features:

- High Power Gain
- Emitter Ballasted Construction for High Reliability and Good Performance

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

Collector–Base Voltage, V_{CBO}	75V
Collector–Emitter Voltage ($R_{BE} = 10\Omega$), V_{CER}	75V
Emitter–Base Voltage, V_{EBO}	5V
Collector Current, I_C	4A
Collector Dissipation ($T_A = +25^\circ\text{C}$), P_C	1.5W
Collector Dissipation ($T_C = +25^\circ\text{C}$), P_C	12.5W
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient, R_{thJA}	83°C/W
Thermal Resistance, Junction–to–Case, R_{thJC}	10°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	5	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	75	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CER}$	$I_C = 10\text{mA}$, $R_{BE} = 10\Omega$	75	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	–	–	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 3\text{V}$, $I_C = 0$	–	–	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 100\text{mA}$, Note 1	35	70	180	
Output Power	P_O	$V_{CC} = 12\text{V}$, $P_{in} = 250\text{mW}$, $f = 27\text{MHz}$	6.0	7.5	–	W
Collector Efficiency	η_C		55	60	–	%

Note 1. Pulse test: Pulse Width = $150\mu\text{s}$, Duty Cycle = 5%.

