



NTE343
Silicon NPN Transistor
RF Power Output
(P_O = 14W, 175MHz)

Description:

The NTE343 is a silicon NPN epitaxial planer type transistor designed for RF power amplifiers on VHF band mobile radio applications.

Features:

- High Power Gain: $G_{pe} \geq 7.5\text{dB}$ ($V_{CC} = 13.5\text{V}$, $P_O = 14\text{W}$, $f = 175\text{MHz}$)
- Ability to Withstand more than 20:1 VSWR Load when Operated at:
 $V_{CC} = 15.2\text{V}$, $P_O = 18\text{W}$, $f = 175\text{MHz}$

Application:

- 10 to 14 Watt Output Power Amplifiers in VHF Band Mobile Radio Applications

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

Collector–Base Voltage, V_{CBO}	35V
Collector–Emitter Voltage ($R_{BE} = \infty$), V_{CEO}	17V
Emitter–Base Voltage, V_{EBO}	4V
Collector Current, I_C	3.5A
Collector Dissipation, P_C	
$T_A = 25^\circ\text{C}$	1.5W
$T_C = 25^\circ\text{C}$	25W
Operating Junction Temperature, T_J	+175°C
Storage Temperature Range, T_{stg}	–55° to +175°C
Thermal Resistance, Junction–to–Ambient, R_{thJA}	100°C/W
Thermal Resistance, Junction–to–Case, R_{thJC}	6°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Breakdown Voltage Emitter to Base	$V_{(BR)EBO}$	$I_E = 10\text{mA}$, $I_C = 0$	4	—	—	V
Breakdown Voltage Collector to Base	$V_{(BR)CBO}$	$I_C = 10\text{mA}$, $I_E = 0$	35	—	—	V
Breakdown Voltage Collector to Emitter	$V_{(BR)CEO}$	$I_C = 50\text{mA}$, $R_{BE} = \infty$	17	—	—	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 25\text{V}$, $I_E = 0$	—	—	1000	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 3\text{V}$, $I_C = 0$	—	—	500	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 100\text{mA}$, Note 1	10	50	180	—
Output Power	P_O	$V_{CC} = 13.5\text{V}$, $P_{in} = 2.5\text{W}$, $f = 175\text{MHz}$	14	15	—	W
Collector Efficiency	η_C		60	70	—	%

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

