

## NTE342

### Silicon NPN Transistor

### RF Power Output

### ( $P_O = 6W$ , 175MHz)

#### **Description:**

The NTE342 is a silicon NPN epitaxial planer type transistor designed for RF power amplifiers on VHF band mobile radio applications.

#### **Features:**

- High Power Gain:  $G_{pe} \geq 10dB$  ( $V_{CC} = 13.5V$ ,  $P_O = 6W$ ,  $f = 175MHz$ )
- Ability to Withstand more than 20:1 VSWR Load when Operated at:  
 $V_{CC} = 15.2V$ ,  $P_O = 6W$ ,  $f = 175MHz$

#### **Application:**

- 4 to 5 Watt Output Power Amplifiers Applications in VHF band

#### **Absolute Maximum Ratings:** ( $T_C = +25^\circ C$ 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, $I_C$ .....	2A
Collector Dissipation, $P_C$	
$T_A = +25^\circ C$ .....	1.5W
$T_C = +25^\circ C$ .....	12.5W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–55° to +150°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
Breakdown Voltage Emitter to Base	$V_{(BR)EBO}$	$I_E = 5\text{mA}, I_C = 0$	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	$I_{CBO}$	$V_{CB} = 25\text{V}, I_E = 0$	—	—	500	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 3\text{V}, I_C = 0$	—	—	500	$\mu\text{A}$
DC Forward Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_C = 100\text{mA}, \text{Note 1}$	10	50	180	—
Output Power	$P_O$	$V_{CC} = 13.5\text{V}, P_{in} = 600\text{mW}, f = 175\text{MHz}$	6	7	—	W
Collector Efficiency	$\eta_C$		60	70	—	%

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

