

NTE477 Silicon NPN Transistor RF Power Output

Description:

The NTE477 is a silicon NPN epitaxial planar type transistor designed for RF power amplifiers in VHF band mobile radio applications.

Features:

- High power gain: $G_{pe} \geq 8.2\text{dB}$ @ $V_{CC} = 13.5\text{V}$; $V_O = 40\text{W}$; $f = 175\text{MHz}$
- Emitter ballasted construction and gold metallization for high reliability, and good performances
- Low thermal resistance ceramic package with flange
- Ability of withstanding more than 20:1 load VSWR when operated at $V_{CC} = 15.2\text{V}$, $P_O = 40\text{W}$, $f = 175\text{MHz}$, $T_C = 25^\circ\text{C}$

Applications:

30 to 35 watts 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
Emitter–Base Voltage, V_{EBO}	4V
Collector–Emitter Voltage ($R_{BE} = \infty$), V_{CEO}	17V
Collector Current, I_C	10A
Collector Dissipation, P_C	
$T_A = +25^\circ\text{C}$	4.5W
$T_C = +25^\circ\text{C}$	75W
Junction Temperature, T_j	$+175^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+175^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient, R_{thJA}	33.3°C/W
Thermal Resistance, Junction–to–Case, R_{thJC}	2°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	$V_{(BR)EBO}$	$I_E = 10\text{mA}$, $I_O = 0$	3	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_O = 10\text{mA}$, $I_E = 0$	35	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_O = 0.1\text{A}$, $R_{BE} = \infty$	17	–	–	V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{OB} = 15\text{V}, I_E = 0$	–	–	2.5	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 3\text{V}, I_O = 0$	–	–	2	mA
DC Forward Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 0.2\text{A}$	10	60	180	–
Output Power	P_O	$V_{CC} = 13.5\text{V}, P_{in} = 6\text{W}, f = 175\text{MHz}$	40	45	–	W
			60	70	–	%

