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## NTE2401 Silicon PNP Transistor RF Stages in FM Front Ends

**Description:**

The NTE2401 is a silicon PNP transistor in a plastic SOT-23 type surface mount package designed for use in RF stages in FM front-ends in common base configuration for SMD applications.

**Absolute Maximum Ratings:**

Collector-Base Voltage, $V_{CB0}$ .....	30V
Collector-Emitter Voltage, $V_{CEO}$ .....	30V
Emitter-Base Voltage, $V_{EBO}$ .....	4V
DC Collector Current, $I_C$ .....	25mA
Total Power Dissipation ( $T_A \leq +25^\circ\text{C}$ , Note 1), $P_{tot}$ .....	300mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°C
Thermal Resistance, Junction-to-Ambient (Note 1), $R_{thJA}$ .....	430K/W

Note 1. Mounted on a ceramic substrate of .314 (8mm) x .393 (10mm) x .027 (0.7mm).

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = 30V, I_E = 0$	-	-	50	nA
Emitterr Cutoff Current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$	-	-	10	$\mu\text{A}$
Base Current	$I_B$	$V_{CE} = 10V, I_C = 4mA$	-	80	160	$\mu\text{A}$
		$V_{CE} = 10V, I_C = 1mA$	-	22	-	$\mu\text{A}$
Base-Emitter Voltage	$V_{BE}$	$V_{CE} = 10V, I_C = 4mA$	-	0.76	-	V
Transition Frequency	$f_T$	$V_{CE} = 10V, I_C = 1mA$	-	350	-	MHz
		$V_{CE} = 10V, I_C = 4mA$	-	450	-	MHz
		$V_{CE} = 10V, I_C = 8mA$	-	440	-	MHz
Feedback Capacitance	$C_{rb}$	$V_{CE} = 10V, V_{EB} = 0$	-	0.1	-	pF
Noise Factor	F	$V_{CE} = 10V, I_C = 2mA, G_s = 16.7mS$	-	3.0	-	dB
		$V_{CE} = 10V, I_C = 5mA, G_s = 6.7mS, jB_s = 5mS$	-	3.5	-	dB

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>y-parameters (common base)</b>						
Input Conductance	$g_{ib}$	$V_{CB} = 10\text{V}, I_C = 4\text{mA},$ $f = 100\text{MHz}$	—	125	—	mS
Input Capacitance	$C_{ib}$		—	64	—	pF
Transfer Admittance	$ y_{fb} $		—	100	—	mS
Phase Angle of Transfer Admittance	$\phi_{fb}$		—	147	—	°
Output Conductance	$g_{ob}$		—	40	—	$\mu\text{S}$
Output Capacitance	$C_{ob}$		—	1.25	—	pF
Feedback Admittance	$ y_{rb} $		—	220	—	$\mu\text{S}$
Phase Angle of Feedback Admittance	$\phi_{rb}$		—	85	—	°

