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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	μA
Base Current	I_B	$V_{CE} = 10V, I_C = 4mA$	-	80	160	μA
		$V_{CE} = 10V, I_C = 1mA$	-	22	-	μA
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
y-parameters (common base)						
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	ϕ_{fb}		—	147	—	°
Output Conductance	g_{ob}		—	40	—	μS
Output Capacitance	C_{ob}		—	1.25	—	pF
Feedback Admittance	$ y_{rb} $		—	220	—	μS
Phase Angle of Feedback Admittance	ϕ_{rb}		—	85	—	°

