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2N5550 & 2N5551 Silicon NPN Transistor Audio Power Amplifier TO-92 Type Package

Description:

The 2N5550 and 2N5551 is a silicon NPN amplifier transistor packaged in a standard TO-92 case.

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	
2N5550	140V
2N5551	160V
Collector-Base Voltage, V_{CBO}	
2N5550	160V
2N5551	180V
Emitter-Base Voltage, V_{EBO}	6V
Continuous Collector Current, I_C	600mA
Total Device Dissipation ($T_A = +25^\circ\text{C}$), P_D	350mW
Derate above 25°C	2.8mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	1.0W
Derate above 25°C	8.0mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	125 $^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	357 $^\circ\text{C}/\text{W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$, Note 1	180	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	180	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 120\text{V}, I_E = 0$	-	-	50	nA
		$V_{CB} = 120\text{V}, I_E = 0, T_A = +100^\circ\text{C}$	-	-	50	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	-	-	50	nA

Note 1 Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
ON Characteristics (Note 1)							
DC Current Gain 2N5550 2N2551 2N5550 2N5551 2N5550 2N5551	h_{FE}	$V_{CE} = 5V, I_C = 1mA$	60	-	-	-	
			80	-	-	-	
		$V_{CE} = 5V, I_C = 10mA$	60	-	250	-	
			80	-	250	-	
		$V_{CE} = 5V, I_C = 50mA$	20	-	-	-	
			30	-	-	-	
Collector-Emitter Saturation Voltage Both Types 2N5550 2N5551	$V_{CE(sat)}$	-	-	-	0.15	V	
		$I_C = 10mA, I_B = 1mA$	-	-	-	0.25	V
		$I_C = 50mA, I_B = 5mA$	-	-	-	0.20	V
Base-Emitter Saturation Voltage Both Types 2N5550 2N5551	$V_{BE(sat)}$	-	-	-	1.0	V	
		$I_C = 10mA, I_B = 1mA$	-	-	-	1.2	V
		$I_C = 50mA, I_B = 5mA$	-	-	-	1.0	V
Small-Signal Characteristics							
Current Gain-Bandwidth Product	f_T	$V_{CE} = 10V, I_C = 10mA, f = 100MHz$	100	-	300	MHz	
Output Capacitance	C_{obo}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	-	6	pF	
Input Capacitance 2N5550 2N5551	C_{ibo}	$V_{BE} = 0.5V, I_C = 0, f = 1MHz$	-	-	30	pF	
			-	-	20	pF	
Small-Signal Current Gain	h_{fe}	$V_{CE} = 10V, I_C = 1mA, f = 1kHz$	50	-	200	-	
Noise Figure 2N5550 2N5551	NF	$V_{CE} = 5V, I_C = 250\mu A, R_S = 1k\Omega, f = 10Hz \text{ to } 15.7kHz$	-	-	10	dB	
			-	-	8.0	V	

Note 1 Pulse Test: Pulse Width = 300 μ s, Duty Cycle = 2.0%.

