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PN2907A
Silicon PNP Transistor
Audio Amplifier, Switch
TO–92 Type Package

Absolute Maximum Ratings: (T_A = +25°C, Note 1 unless otherwise specified)

Collector–Emitter Voltage, V_{CEO} 60V
Collector–Base Voltage, V_{CBO} 60V
Emitter–Base Voltage, V_{EBO} 5V
Continuous Collector Current, I_C 800mA
Total Device Dissipation (T_A = 25°C, Note 2), P_D 625mW
Derate Above 25°C . . . . . 5mW/°C
Operating Junction Temperature Range, T_J . . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Junction–to–Case (Note 2), R_{thJC} . . . . . 83.3°C/W
Thermal Resistance, Junction–to–Ambient (Note 2), R_{thJA} . . . . . 200°C/W

Note 1. These are steady–state limits and based on a maximum junction temperature of +150°C.

Note 2. PCB size: FR–4 76mm x 114mm x 1.57mm (3 inch x 4.5 inch x .062 inch) with minimum land pattern size.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0, Note 3	60	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	60	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	5	–	–	V
Base Cutoff Current	I_{BL}	V_{CE} = 30V, V_{EB} = 0.5V	–	–	50	nA
Collector Cutoff Current	I_{CEX}	V_{CE} = 30V, V_{EB} = 0.5V	–	–	50	nA
	I_{CBO}	V_{CB} = 50V, I_E = 0	–	–	0.02	μA
		V_{CB} = 50V, I_E = 0, T_A = +150°C	–	–	20	μA
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 0.1A	75	–	–	
		V_{CE} = 10V, I_C = 1mA	100	–	–	
		V_{CE} = 10V, I_C = 10mA	100	–	–	
		V_{CE} = 10V, I_C = 150mA, Note 3	100	–	300	
		V_{CE} = 10V, I_C = 500mA, Note 3	50	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 150mA, I_B = 15mA, Note 3	–	–	0.4	V
		I_C = 500mA, I_B = 50mA, Note 3	–	–	1.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 150mA, I_B = 15mA, Note 4	–	–	1.3	V
		I_C = 500mA, I_B = 50mA	–	–	2.6	V

Note 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Small Signal Characteristics						
Current Gain – Bandwidth Product	f_T	I_C = 50mA, V_{CE} = 20V, f = 100MHz	200	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 100kHz	–	–	8	pF
Input Capacitance	Ci_b	V_{BE} = 2V, I_C = 0, f = 1MHz	–	–	30	pF
Switching Characteristics						
Turn–On Time	t_{on}	V_{CC} = 30V, I_C = 150mA, I_{B1} = 15mA	–	–	45	ns
Delay Time	t_d		–	–	10	ns
Rise Time	t_r		–	–	40	ns
Turn–Off Time	t_{off}	V_{CC} = 6V, I_C = 150mA, I_{B1} = I_{B2} = 15mA	–	–	100	ns
Storage Time	t_s		–	–	80	ns
Fall Time	t_f		–	–	30	ns