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2N5232A
Silicon NPN Transistor
Low Noise, High Gain Amplifier
TO–92 Type Package

Description:

The 2N5232A is a silicon NPN transistor in a TO–92 type package designed especially for low noise preamplifier and small signal industrial amplifier applications. This device features low collector saturation voltage, tight beta control, and excellent low noise characteristics.

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

Collector–Emitter Voltage, V_{CEO} 50V
Collector–Base Voltage, V_{CBO} 70V
Emitter–Base Voltage, V_{EBO} 5V
Collector Current, I_C 100mA
Power Dissipation (T_A = +25°C), P_T 360mW
Derate Above +25°C . . . . . 3.6mW/°C
Operating Junction Temperature, T_J . . . . . +125°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Lead Temperature (During Soldering, 1/16” from case, 10sec max), T_L . . . . . +260°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Collector Cutoff Current	I_{CBO}	V_{CB} = 50V, I_E = 0	–	–	30	nA
		V_{CB} = 50V, I_E = 0, T_A = +100°C	–	–	10	μA
Collector Cutoff Current	I_{CES}	V_{CB} = 50V, V_{BE} = 0	–	–	30	nA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	50	nA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics (Cont'd)						
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 0.1mA, Note 2	–	170	–	
		V_{CE} = 5V, I_C = 2mA	250	–	500	
Breakdown Voltage Collector–to–Emitter	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	50	–	–	V
Breakdown Voltage Collector–to–Base	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	70	–	–	V
Breakdown Voltage Emitter–to–Base	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	5	–	–	V
Collector Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 1mA, Note 3	–	–	0.125	V
Base Saturation Voltage	$V_{BE(sat)}$	I_C = 10mA, I_B = 1mA, Note 3	–	–	0.78	V
Base Emitter ON Voltage	$V_{BE(on)}$	V_{CE} = 10V, I_C = 2mA	0.5	–	0.9	V
Dynamic Characteristics						
Forward Current Transfer Ratio	h_{fe}	V_{CE} = 5V, I_C = 2mA, f = 1kHz	250	–	750	
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	–	4	pF
Noise Figure	NF	I_C = 100μA, V_{CE} = 5V, R_s = 5kΩ, f = 1kHz, BW = 15.7kHz	–	–	5	dB

Note 2. Typically, a minimum of 95% of the distribution is above this value.

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