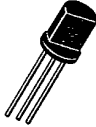


Signal Transistors

**2N5249, 2N5249A****Silicon Transistors**

TO-98

The GE/RCA 2N5249 and 2N5249A are planar epitaxial passivated NPN silicon transistors designed especially for low noise preamplifier and small signal industrial amplifier applications. The units feature low collector saturation voltage,

tight beta control and excellent low noise characteristics. The 2N5249A includes a noise figure specification. These types are supplied in JEDEC TO-98 package.

Devices in TO-98 package are supplied with and without seating flange (see Dimensional Outline).

**MAXIMUM RATINGS, Absolute-Maximum Values:**

COLLECTOR TO EMITTER VOLTAGE ( $V_{CE0}$ )	50 V
COLLECTOR TO BASE VOLTAGE ( $V_{CBO}$ )	70 V
EMITTER TO BASE VOLTAGE ( $V_{EB0}$ )	5 V
CONTINUOUS COLLECTOR CURRENT ( $I_C$ ) (Note 1)	100 mA
TOTAL POWER DISSIPATION ( $T_A \leq 25^\circ\text{C}$ ) ( $P_T$ ) (Note 2)	360 mW
TOTAL POWER DISSIPATION ( $T_A \leq 55^\circ\text{C}$ ) ( $P_T$ ) (Note 2)	260 mW
OPERATING TEMPERATURE ( $T_J$ )	-55° to +125°C
STORAGE TEMPERATURE ( $T_{STG}$ )	-55° to +150°C
LEAD TEMPERATURE, $1/16" \pm 1/32"$ (1.58mm $\pm$ 0.8mm) from case for 10s max. ( $T_L$ )	+260°C

**NOTES:**

1. Determined from power limitations due to saturation voltage at this current.
2. Derate 3.3mW/°C increase in ambient temperature above 25°C

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ELECTRICAL CHARACTERISTICS, At Ambient Temperature ( $T_A$ ) = 25°C Unless Otherwise Specified

CHARACTERISTICS	SYMBOL	LIMITS			UNITS
		MIN.	TYP.	MAX.	
Collector Cutoff Current ( $V_{CB} = 50V$ )	$I_{CBO}$	—	—	30	nA
( $V_{CB} = 50V, T_A = 100^\circ C$ )		—	—	10	$\mu A$
Collector Cutoff Current ( $V_{CB} = 50V$ , base-emitted junction short-circuited)	$I_{CES}$	—	—	30	nA
Emitter Cutoff Current ( $V_{EB} = 5V$ )	$I_{EBO}$	—	—	50	nA
DC Forward Current Transfer Ratio ( $V_{CE} = 5V, I_C = 2mA$ )	$h_{FE}$	400	—	800	—
( $V_{CE} = 5V, I_C = 100\mu A$ )		—	300*	—	—
Small-Signal Forward Current Transfer Ratio ( $V_{CE} = 5V, I_C = 2mA, f = 1kHz$ )	$h_{fe}$	400	—	1200	—
Collector Emitter Breakdown Voltage ( $I_C = 10mA$ )	$V_{(BR)CEO}^{**}$	50	—	—	V
Collector Base Breakdown Voltage ( $I_C = 10\mu A$ )	$V_{(BR)CBO}$	70	—	—	
Emitter Base Breakdown Voltage ( $I_E = 10\mu A$ )	$V_{(BR)EBO}$	5	—	—	
Collector Saturation Voltage ( $I_C = 10mA, I_B = 1mA$ )	$V_{CE(sat)}^{**}$	—	—	0.125	
Base Saturation Voltage ( $I_C = 10mA, I_B = 1mA$ )	$V_{BE(sat)}^{**}$	—	—	0.78	
Base Emitter Voltage ( $V_{CE} = 10V, I_C = 2mA$ )	$V_{BE}$	0.5	—	0.9	
Output Capacitance, Common Base ( $V_{CB} = 10V, I_E = 0, f = 1MHz$ )	$C_{cb}$	—	—	4	pF
Noise Figure ( $I_C = 100\mu A, V_{CE} = 5V, R_g = 5k\Omega, f = 1kHz$ , BW = 15.7 kHz)	NF	—	—	3	dB

\*Typically a minimum of 95% of the distribution is above this value.  
 \*\*Pulse conditions: 300  $\mu s$  pulse width,  $\leq 2\%$  duty cycle.

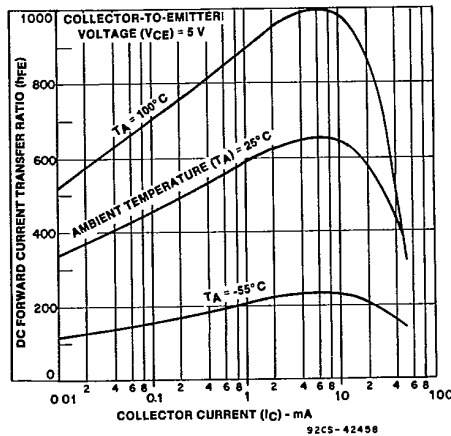


Fig. 1 — Typical dc forward-current transfer ratio characteristics.

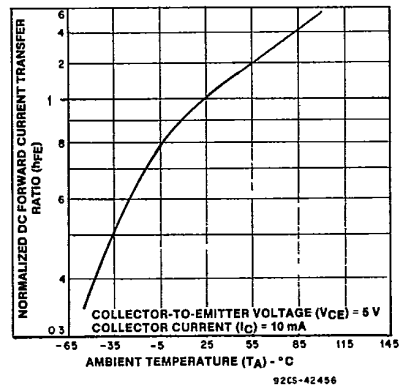


Fig. 2 — Normalized dc forward-current transfer ratio characteristic.

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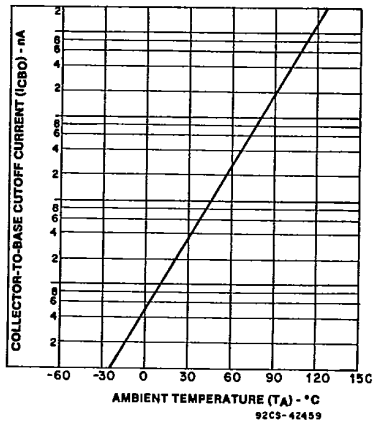


Fig. 3—Typical collector cutoff current characteristic.

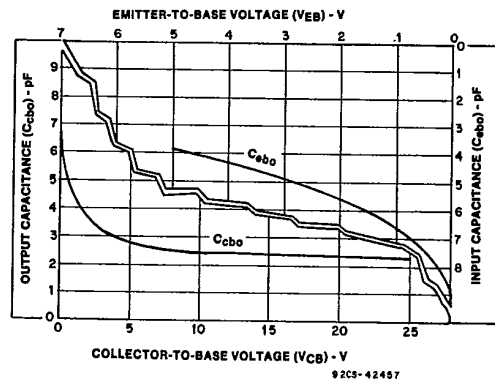


Fig. 4—Typical input and output capacitance characteristics.

**TERMINAL CONNECTIONS**

- Lead 1 - Emitter
- Lead 2 - Collector
- Lead 3 - Base