

Transistors

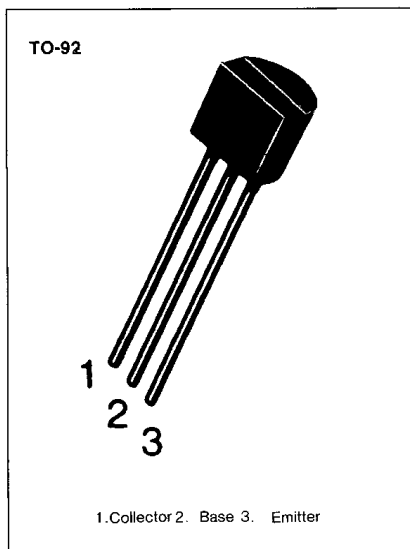
BC309

SWITCHING AND AMPLIFIER APPLICATIONS

• LOW NOISE

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	-30	V
Collector-Emitter Voltage	V_{CEO}	-25	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-100	mA
Collector Dissipation	P_C	500	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Breakdown Voltage	BV_{CEO}	$I_C = -2\text{mA}, I_B = 0$	-25			V
Collector Emitter Breakdown Voltage	BV_{CES}	$I_C = -10\mu\text{A}, I_B = 0$	-30			V
Emitter Base Breakdown Voltage	BV_{EBO}	$I_E = -10\mu\text{A}, I_C = 0$	-5			V
Collector Cutoff Current	I_{CES}	$V_{CE} = -45\text{V}, I_B = 0$ $V_{CE} = -25\text{V}, I_B = 0$		-2	-15	nA
DC Current Gain	h_{FE}	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	120		800	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5\text{mA}$		-0.5	-0.3	V
Collector Base Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5\text{mA}$		-0.7	-0.85	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.55	-0.62	-0.7	V
Current Gain Bandwidth Product	f_T	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 50\text{MHz}$		130		MHz
Collector Base Capacitance	C_{CBO}	$V_{CB} = -10\text{V}, f = 1\text{MHz}$			6	pF
Emitter Base Capacitance	C_{EBO}	$V_{EB} = -0.5\text{V}, f = 1\text{MHz}$		12		pF
Noise Figure	NF	$V_{CE} = -5\text{V}, I_C = -0.2\text{mA}$ $R_g = 2\text{kohm}, f = 1\text{KHz}$			4	dB
	NF	$V_{CE} = -5\text{V}, I_C = -0.2\text{mA}$ $R_g = 2\text{kohm}, f = 30\sim 15\text{KHz}$			4	dB

h_{FE} CLASSIFICATION

Classification	A	B	C
h_{FE}	120-220	180-460	380-800

