

Transistors

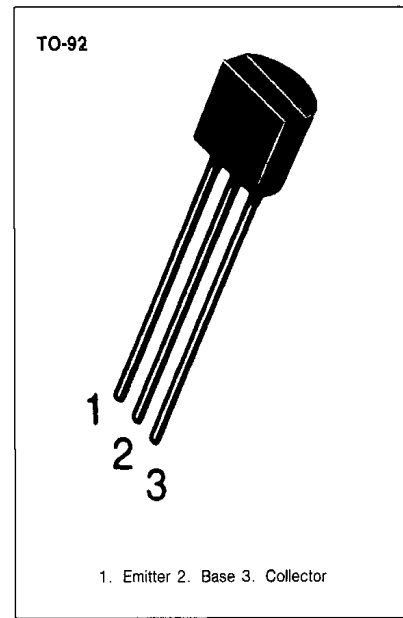
2SA709

HIGH VOLTAGE AMPLIFIER

- Collector-Base Voltage $V_{CB0} = -160V$
- Collector Dissipation $P_c = 800mW$

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	-160	V
Collector-Emitter Voltage	V_{CE0}	-150	V
Emitter-Base Voltage	V_{EB0}	-8	V
Collector Current	I_c	-700	mA
Collector Dissipation	P_c	800	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature	T_{stg}	-55 ~ 150	$^\circ C$



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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_c = -100\mu A, I_E = 0$	-160			V
Collector-Emitter Breakdown Voltage	BV_{CE0}	$I_c = -10mA, I_B = 0$	-150			V
Emitter-Base Breakdown Voltage	BV_{EB0}	$I_E = -100\mu A, I_C = 0$	-8			V
Collector Cut-off Current	I_{CB0}	$V_{CB} = -100V, I_E = 0$			-0.1	μA
Emitter Cut-off Current	I_{EB0}	$V_{EB} = -5V, I_C = 0$			-0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = -2V, I_C = -50mA^*$	40		400	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -200mA, I_B = -20mA^*$		-0.3	-0.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -200mA, I_B = -20mA^*$		-0.9	-1.0	V
Current Gain-Bandwidth Product	f_T	$V_{CE} = -10V, I_C = -50mA$		50		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0$ $f = 1MHz$			10	pF

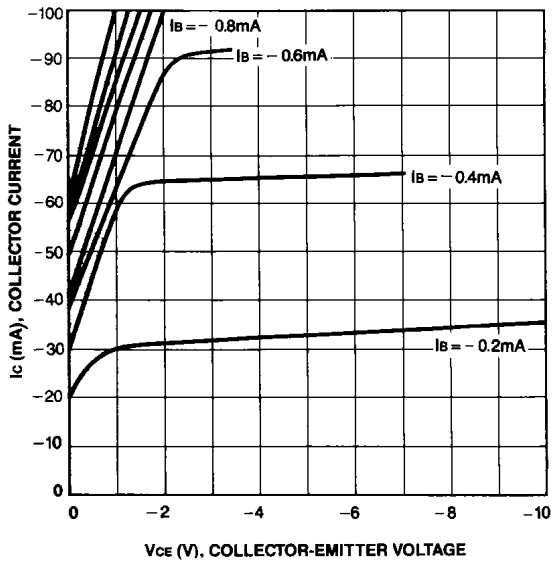
* pulse measured $PW \leq 350\mu s$, duty cycle $\leq 2\%$

h_{FE} CLASSIFICATION

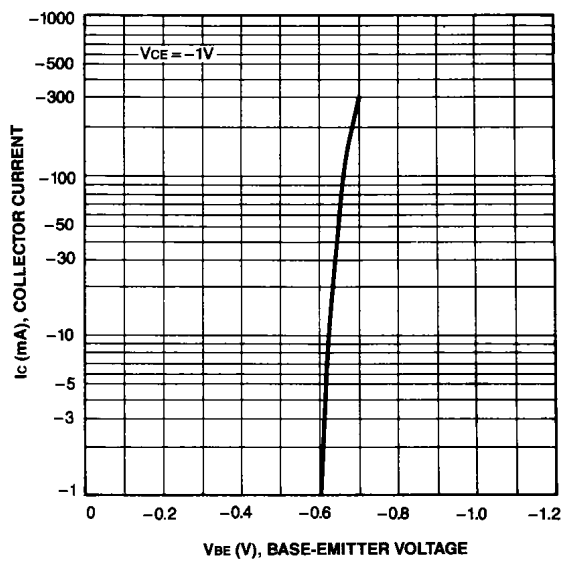
Classification	R	O	Y	G
h_{FE}	40-80	70-140	120-240	200-400



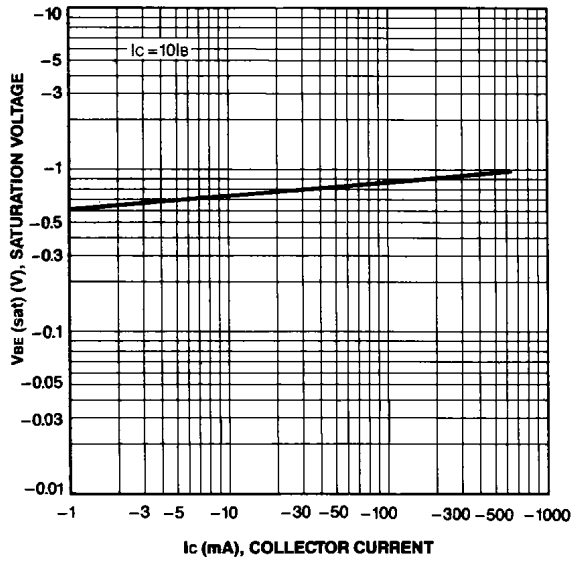
STATIC CHARACTERISTIC



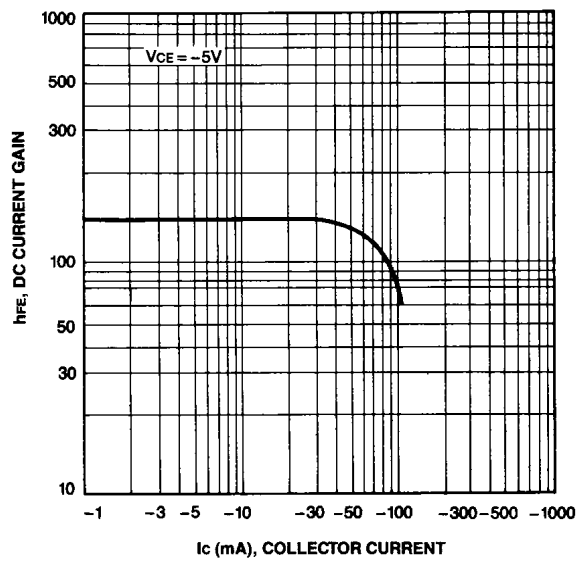
BASE-EMITTER ON VOLTAGE



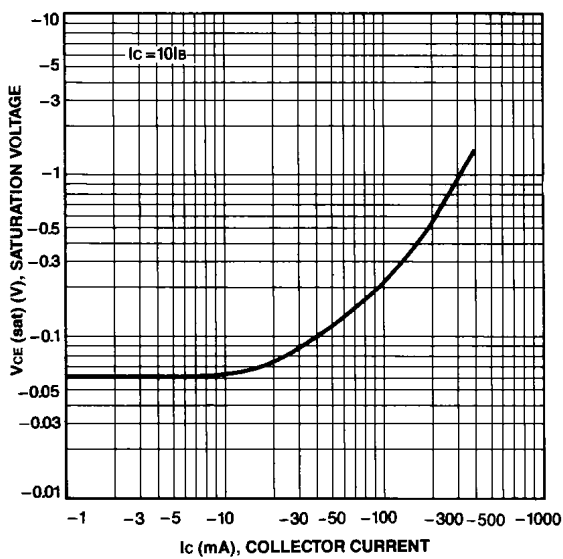
BASE-EMITTER SATURATION VOLTAGE



DC CURRENT GAIN



COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE

