

# Transistors

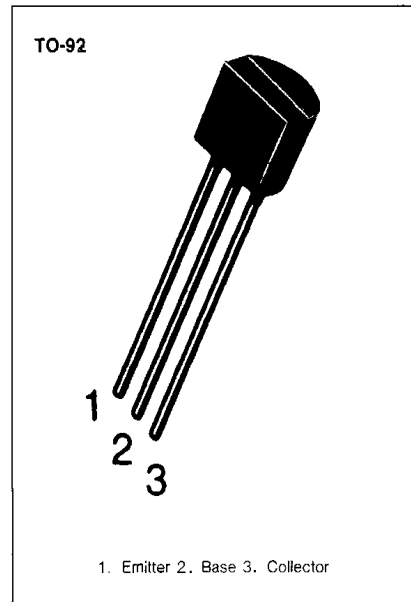
## 2SA708

### LOW FREQUENCY AMPLIFIER MEDIUM SPEED SWITCHING

- Collector-Base Voltage  $V_{CB0} = -80V$
- Collector Dissipation  $P_C = 800mW$

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	- 80	V
Collector-Emitter Voltage	$V_{CE0}$	- 60	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	$BV_{CB0}$	$I_C = -100\mu A, I_E = 0$	- 80			V
Collector-Emitter Breakdown Voltage	$BV_{CE0}$	$I_C = -10mA, I_B = 0$	- 60			V
Emitter-Base Breakdown Voltage	$BV_{EB0}$	$I_E = -100\mu A, I_C = 0$	- 8			V
Collector Cut-off Current	$I_{CB0}$	$V_{CB} = -60V, I_E = 0$			- 0.1	$\mu A$
Emitter Cut-off Current	$I_{EB0}$	$V_{EB} = -5V, I_C = 0$			- 0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = -2V, I_C = -50mA^*$	40		240	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -500mA, I_B = -50mA^*$		- 0.3	- 0.7	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -500mA, I_C = -50mA$		- 0.9	1.1	V
Current-Gain-Bandwidth Product	$f_T$	$V_{CE} = -10V, I_C = -50mA$		50		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0$ $f = 1MHz$		13		pF

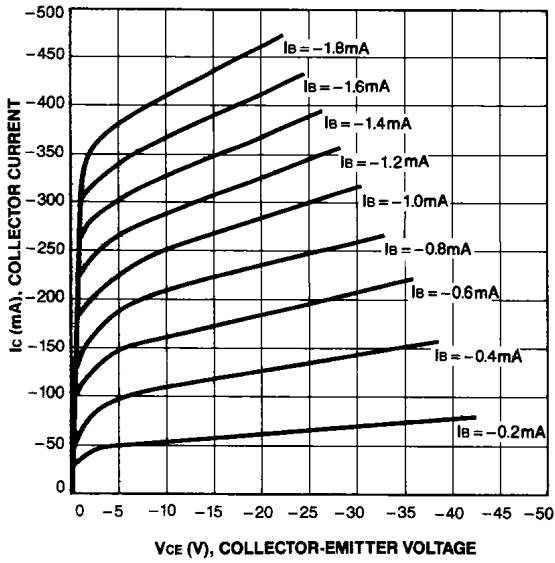
\* Pulse Test:  $PW \leq 350\mu s$ , duty cycle  $\leq 2\%$

### $h_{FE}$ CLASSIFICATION

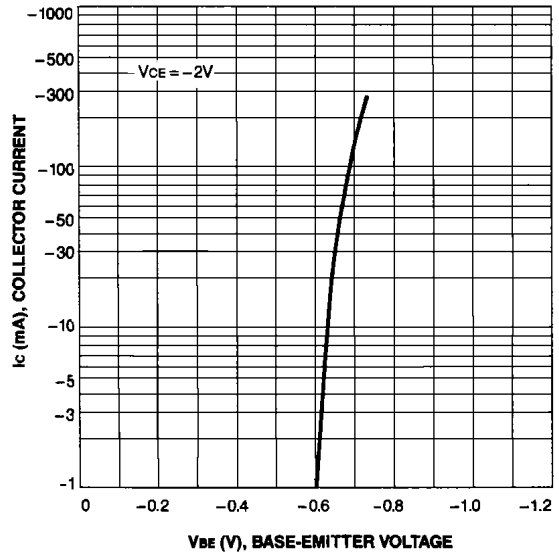
Classification	R	O	Y
$h_{FE}$	40-80	70-140	120-240



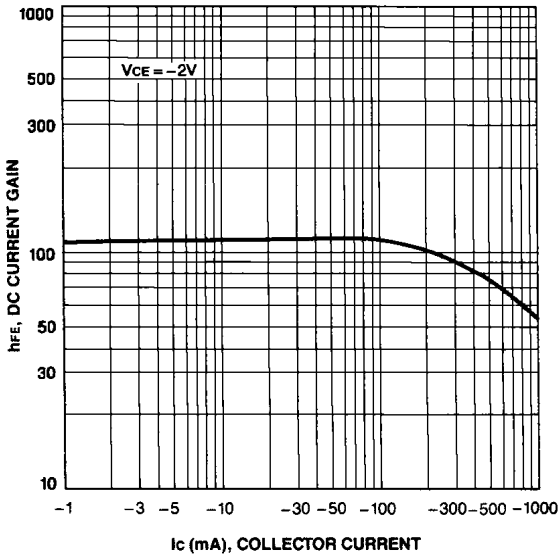
**STATIC CHARACTERISTIC**



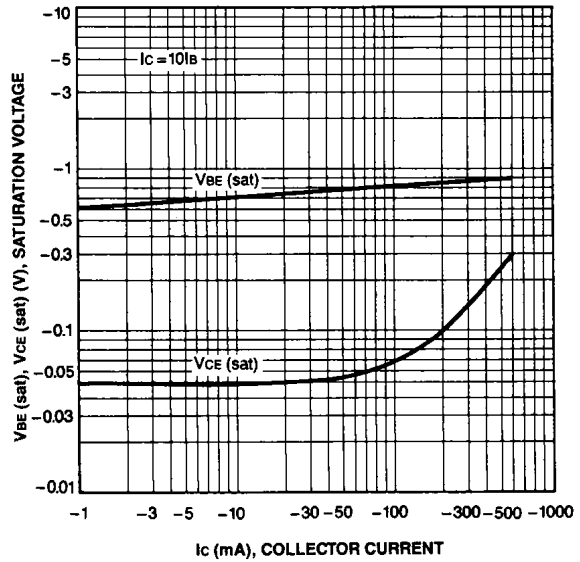
**BASE-EMITTER ON VOLTAGE**



**DC CURRENT GAIN**



**BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE**



**COLLECTOR OUTPUT CAPACITANCE**

