

# Transistors

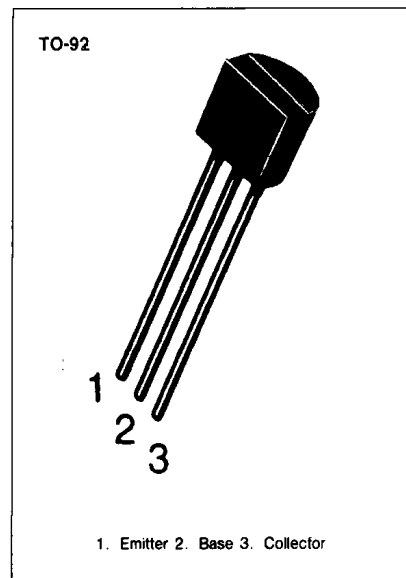
## 2SA9012

### 1W OUTPUT AMPLIFIER OF POTABLE RADIOS IN CLASS B PUSH-PULL OPERATION.

- High total power dissipation. ( $P_T=625\text{mW}$ )
- High Collector Current. ( $I_C=-500\text{mA}$ )
- Excellent  $h_{FE}$  linearity

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-20	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_C$	-500	mA
Collector Dissipation	$P_C$	625	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~150	$^\circ\text{C}$



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

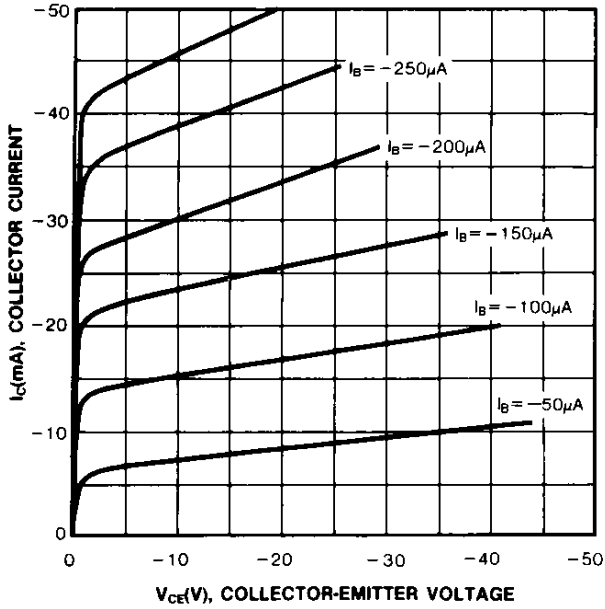
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-40			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=-1\text{mA}, I_B=0$	-20			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-5			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-25\text{V}, I_E=0$			-100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-3\text{V}, I_C=0$			-100	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=-1\text{V}, I_C=-50\text{mA}$	64	120	202	
	$h_{FE2}$	$V_{CE}=-1\text{V}, I_C=-500\text{mA}$	40	90		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		-0.18	-0.6	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}, I_B=-50\text{mA}$		-0.95	-1.2	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=-1\text{V}, I_C=-10\text{mA}$	-0.6	-0.67	-0.7	V

### $h_{FE}$ (1) CLASSIFICATION

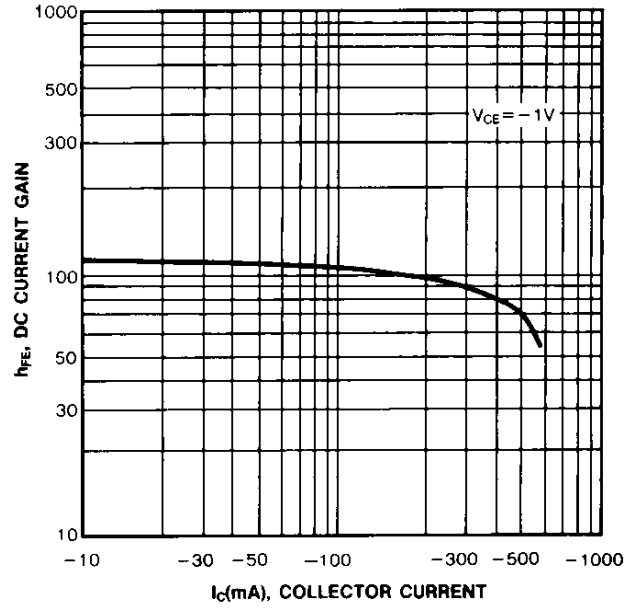
Classification	D	E	F	G	H
$h_{FE}$ (1)	64-91	78-112	96-135	112-166	144-202



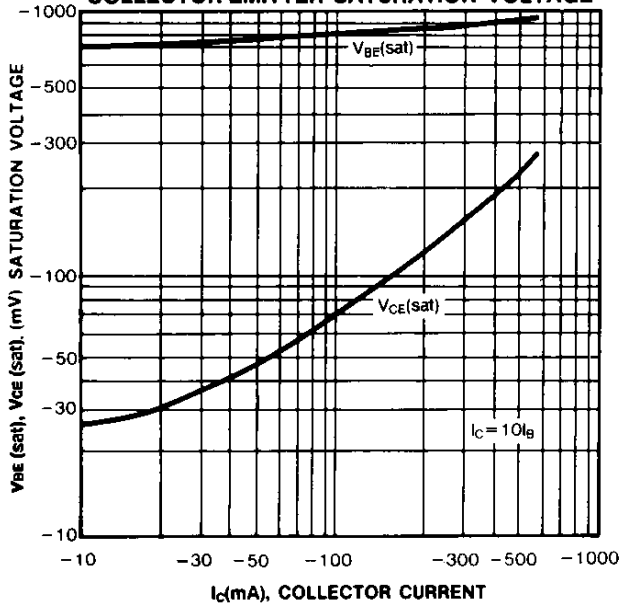
**STATIC CHARACTERISTIC**



**DC CURRENT GAIN**



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



**CURRENT GAIN-BANDWIDTH PRODUCT**

