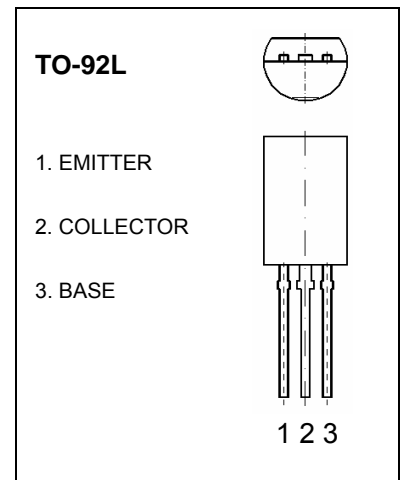


TO-92L Plastic-Encapsulate Transistors

2SA684 TRANSISTOR (PNP)

FEATURES

- Automatic insertion by radial taping possible.
- Complementary pair with 2SC1384.



MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-50	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-1	A
P_C	Collector Power Dissipation	0.75	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55-150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}$, $I_E=0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-2\text{mA}$, $I_B=0$	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}$, $I_C=0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB}=-20\text{V}$, $I_E=0$			-0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=-10\text{V}$, $I_C=-500\text{mA}$	85		340	
	$h_{FE(2)}$	$V_{CE}=-5\text{V}$, $I_C=-1\text{A}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$		-0.2	-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}$, $I_B=-50\text{mA}$		-0.85	-1.2	V
Transition frequency	f_T	$V_{CE}=-10\text{V}$, $I_E=50\text{mA}$, $f=200\text{MHz}$		200		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$		20	30	pF

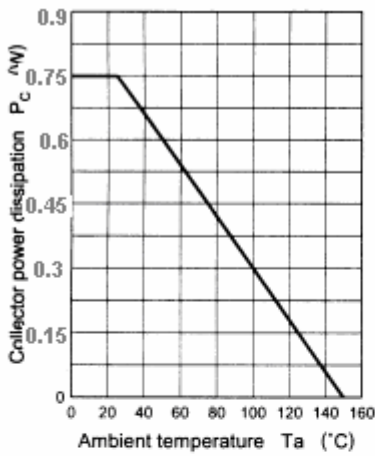
CLASSIFICATION OF $h_{FE(1)}$

Rank	Q	R	S
Range	85-170	120-240	170-340

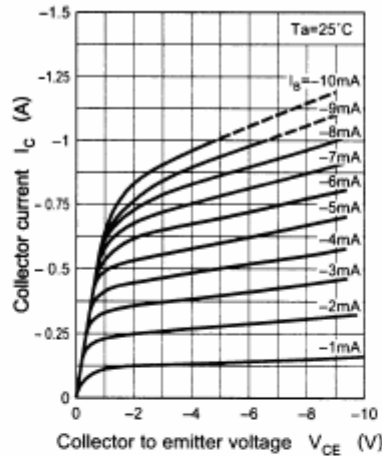
Typical Characteristics

2SA684

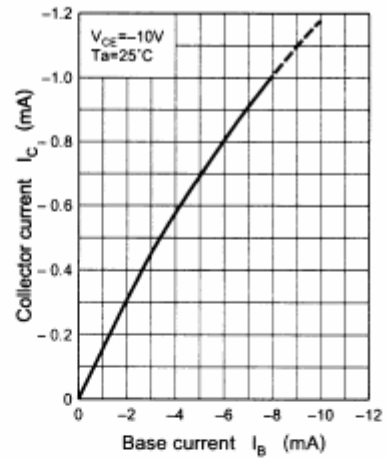
$P_C - T_a$



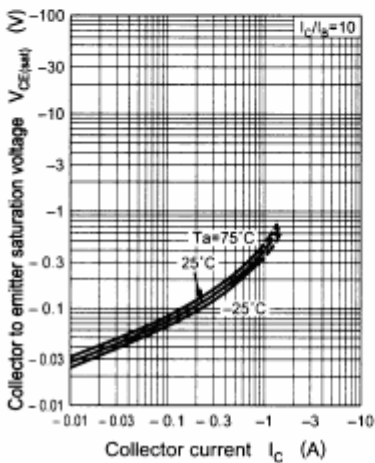
$I_C - V_{CE}$



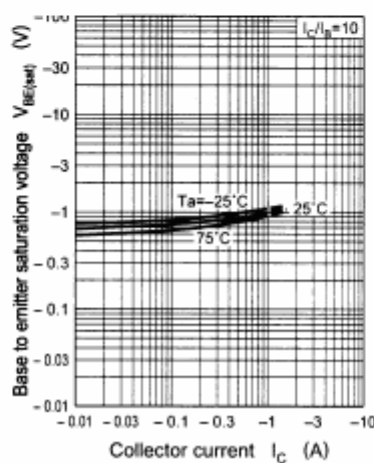
$I_C - I_B$



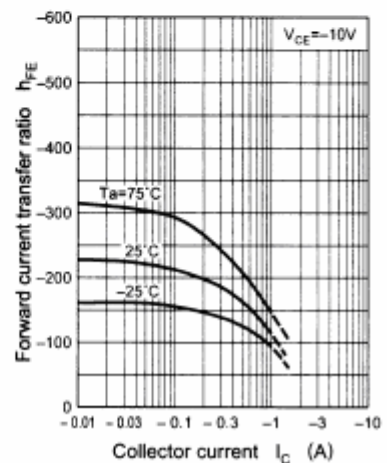
$V_{CE(sat)} - I_C$



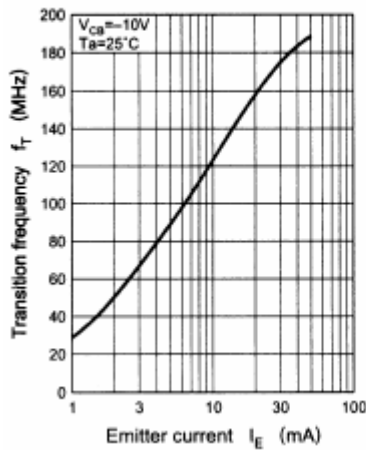
$V_{BE(sat)} - I_C$



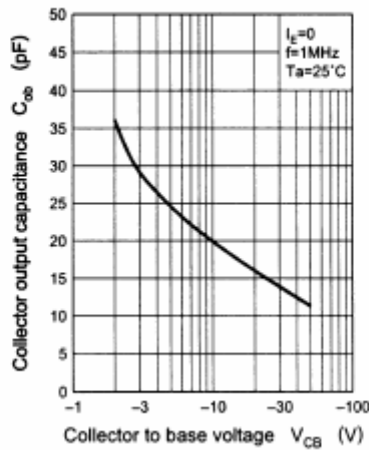
$h_{FE} - I_C$



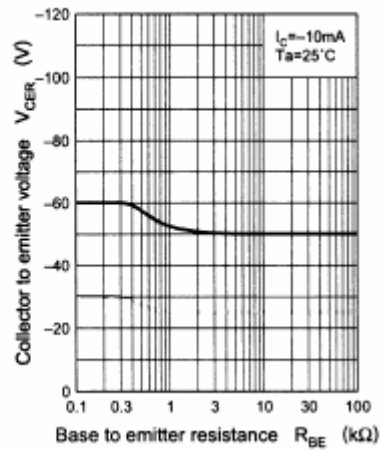
$f_T - I_E$



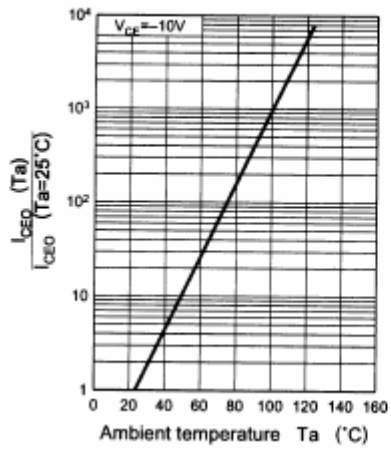
$C_{ob} - V_{CB}$



$V_{CER} - R_{BE}$



$I_{CEO} - T_a$



Area of safe operation (ASO)

