

## TO-220F Plastic-Encapsulate Transistors

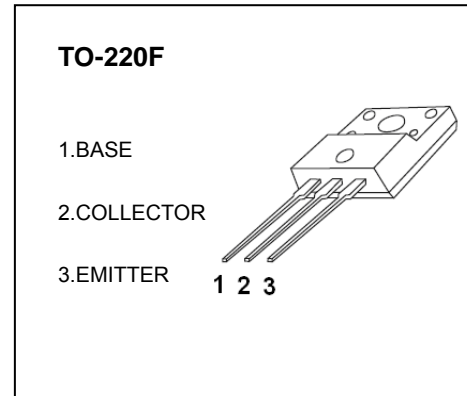
### 2SB946 TRANSISTOR (PNP)

#### FEATURES

- Low Collector to Emitter Saturation Voltage  $V_{CE(sat)}$
- Satisfactory Linearity of Forward Current Transfer Ratio  $h_{FE}$
- Large Collector Current  $I_C$

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-130	V
$V_{CEO}$	Collector-Emitter Voltage	-80	V
$V_{EBO}$	Emitter-Base Voltage	-7	V
$I_C$	Collector Current	-7	A
$P_C$	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	62.5	$^\circ\text{C/W}$
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^\circ\text{C}$



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu\text{A}, I_E=0$	-130			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA}, I_B=0$	-80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100\mu\text{A}, I_C=0$	-7			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-100\text{V}, I_E=0$			-10	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-5\text{V}, I_C=0$			-50	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=-2\text{V}, I_C=-0.1\text{A}$	45			
	$h_{FE(2)}$	$V_{CE}=-2\text{V}, I_C=-3\text{A}$	60		260	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-5\text{A}, I_B=-250\text{mA}$			-0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-5\text{A}, I_B=-250\text{mA}$			-1.5	V
Transition frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-0.5\text{A}, f=10\text{MHz}$		30		MHz

#### CLASSIFICATION OF $h_{FE(2)}$

RANK	R	Q	P
RANGE	60-120	90-180	130-260