

# TO-92 Plastic-Encapsulate Transistors

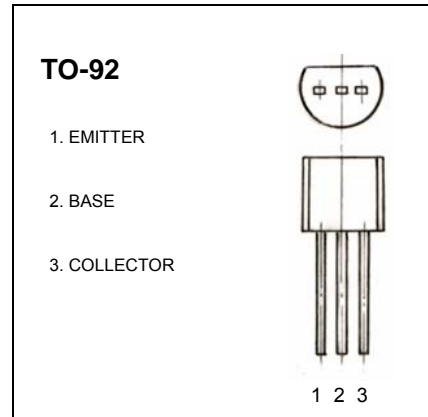
## S9014 TRANSISTOR (NPN)

### FEATURES

- High total power dissipation. ( $P_C=0.45W$ )
- High  $h_{FE}$  and good linearity
- Complementary to S9015

### MAXIMUM RATINGS ( $T_A=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	0.1	A
$P_C$	Collector Power Dissipation	0.45	W
$T_J$	Junction Temperature	150	$^\circ C$
$T_{stg}$	Storage Temperature	-55-150	$^\circ C$

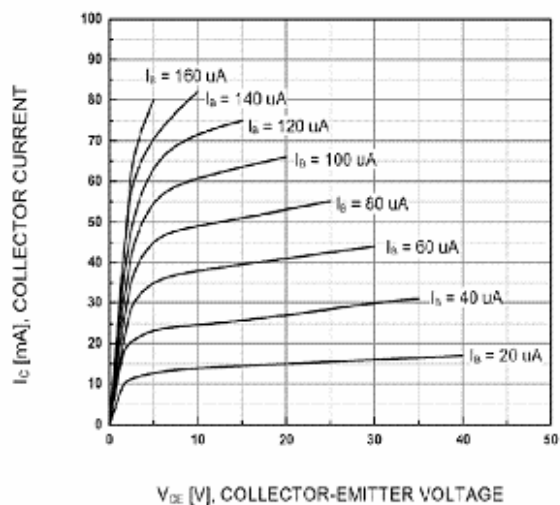


### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ C$ unless otherwise specified)

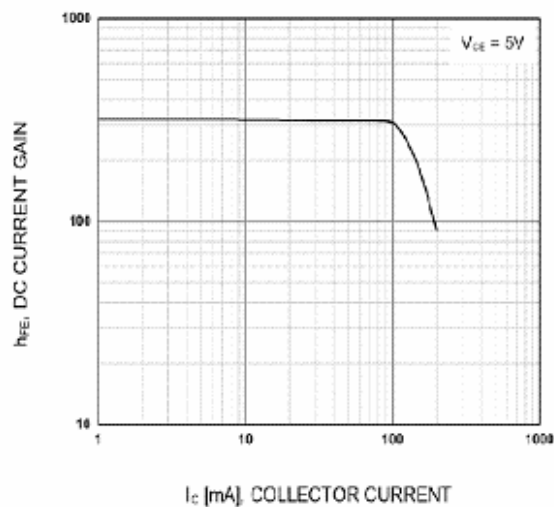
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	45			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=50V, I_E=0$			0.1	$\mu A$
Collector cut-off current	$I_{CEO}$	$V_{CE}=35V, I_B=0$			0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			0.1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=1mA$	60		1000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100mA, I_B=5mA$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=100mA, I_B=5mA$			1	V
Transition frequency	$f_T$	$V_{CE}=5V, I_C=10mA$ $f=30MHz$	150			MHz

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

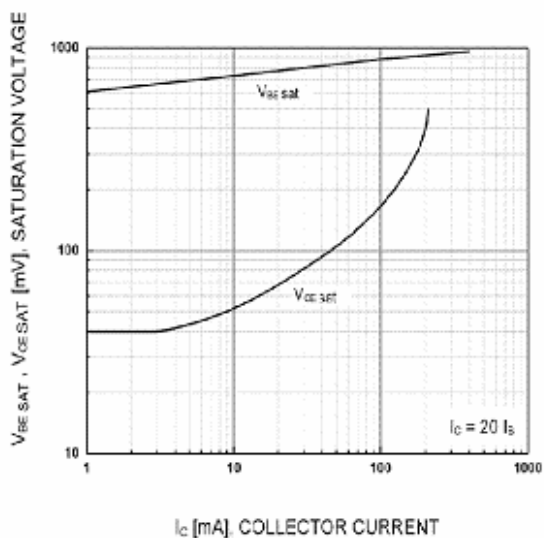
Rank	A	B	C	D
Range	60-150	100-300	200-600	400-1000



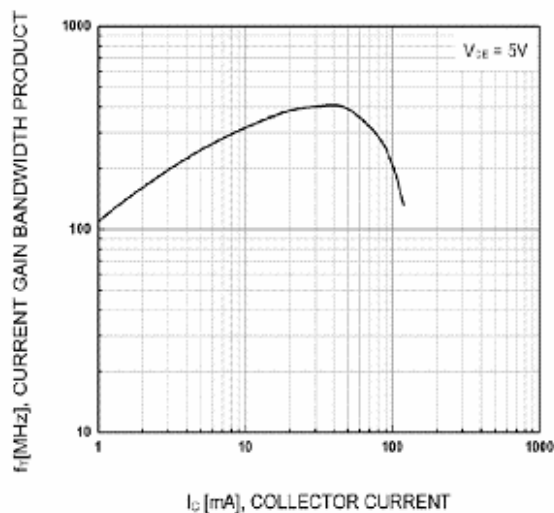
**Static Characteristic**



**DC current Gain**



**Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage**



**Current Gain Bandwidth Product**