

## TO-92 Plastic-Encapsulate Transistors

### A42 TRANSISTOR (NPN)

#### FEATURES

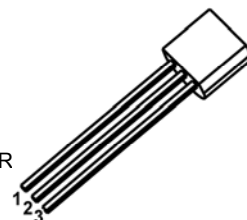
- High voltage

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

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	300	V
$V_{CE0}$	Collector-Emitter Voltage	300	V
$V_{EB0}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	200	mA
$I_{CM}$	Collector Current -Pulsed	500	mA
$P_C$	Collector Power Dissipation	625	mW
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^{\circ}\text{C}/\text{mW}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^{\circ}\text{C}/\text{mW}$

#### TO-92

1. EMITTER
2. BASE
3. COLLECTOR



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	300			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	300			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=200\text{V}, I_E=0$			0.25	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	60			
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	80		250	
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_C=30\text{mA}$	75			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=20\text{mA}, I_B=2\text{mA}$			0.9	V
Transition frequency	$f_T$	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=30\text{MHz}$	50			MHz

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

Rank	A	B <sub>1</sub>	B <sub>2</sub>	C
Range	80-100	100-150	150-200	200-250