

# TO-92 Plastic-Encapsulate Transistors

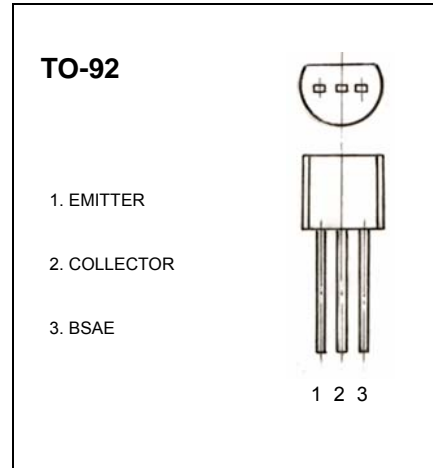
## 2SD1616A TRANSISTOR (NPN)

### FEATURE

Power dissipation

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

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	120	V
$V_{CE0}$	Collector-Emitter Voltage	60	V
$V_{EB0}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	1	A
$P_C$	Collector Power Dissipation	750	mW
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55 to 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	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	120			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=2\text{mA}, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=6\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC current gain	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	135		600	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=1\text{A}$	81			
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$			0.3	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$			1.2	V
Base-emitter voltage *	$V_{BE}$	$V_{CE}=2\text{V}, I_C=50\text{mA}$	0.6		0.7	V
Transition frequency	$f_T$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	100			MHz
Output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			19	pF
Turn on time	$t_{on}$	$V_{CC}=10\text{V}, I_C=100\text{mA}, I_{B1}=-I_{B2}=10\text{mA}$		0.07		$\mu\text{s}$
Storage time	$t_s$			0.95		$\mu\text{s}$
Fall time	$t_f$			0.07		$\mu\text{s}$

\*pulse test:  $PW \leq 350\mu\text{s}, \delta \leq 2\%$ .

### CLASSIFICATION OF $h_{FE1}$

Rank	L	K	U
Range	135-270	200-400	300-600

# Typical Characteristics

# 2SD1616A

