



TO-92 Plastic-Encapsulate Transistors

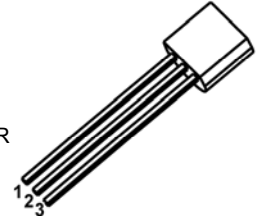
2SD1994A TRANSISTOR (NPN)

FEATURES

- Low Collector to Emitter Saturation Voltage
- Complementary Pair with 2SB1322A
- Allowing Supply with the Radial Taping

TO - 92

1. EMITTER
2. COLLECTOR
3. BASE



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

Symbol	Parameter	Value	Unit
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	1	A
P_C	Collector Power Dissipation	625	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	200	$^{\circ}\text{C}/\text{W}$
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	$V_{(BR)CBO}$	$I_C=0.01\text{mA}, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=2\text{mA}, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.01\text{mA}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$ *	$V_{CE}=10\text{V}, I_C=0.5\text{A}$	85		340	
	$h_{FE(2)}$ *	$V_{CE}=5\text{V}, I_C=1\text{A}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$ *	$I_C=0.5\text{A}, I_B=0.05\text{A}$			0.4	V
Base-emitter voltage	V_{BE} *	$V_{CE}=0.5\text{V}, I_C=0.05\text{A}$			1.2	V
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$			20	pF
Transition frequency	f_T	$V_{CE}=10\text{V}, I_C=0.05\text{A}, f=200\text{MHz}$		200		MHz

*Pulse test

CLASSIFICATION OF h_{FE}

RANK	Q	R	S
RANGE	85-170	120-240	170-340

Typical Characteristics

2SD1994A

