

# TO-92S Plastic-Encapsulate Transistors

## 2SC3330 TRANSISTOR (NPN)

### FEATURES

- Large Current Capacity and Wide ASO

### TO - 92S

1. EMITTER
2. COLLECTOR
3. BASE



### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	50	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current	200	mA
P <sub>C</sub>	Collector Power Dissipation	300	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	417	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> =0	60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	50			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0			0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			0.1	μA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA	100		800	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =0.1mA	70			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA			0.3	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA			1	V
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =6V, I <sub>E</sub> =0, f=1MHz		3		pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =10mA		200		MHz

### CLASSIFICATION OF h<sub>FE(1)</sub>

RANK	R	S	T	U	V
RANGE	100-200	140-280	200-400	280-560	400-800