

2N5830 • 2N5831 • 2N5832 • 2N5833

NPN SMALL SIGNAL HIGH VOLTAGE GENERAL PURPOSE AMPLIFIERS

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature	-55°C to +150°C
Operating Junction Temperature	150°C
Lead Temperature (10 seconds)	260°C

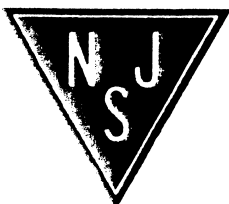
Maximum Power Dissipation (Notes 2 & 3)

Total Dissipation at 25°C Ambient Temperature	0.625 W
at 25°C Case Temperature	1.0 W

Maximum Voltages and Current

	2N5830	2N5831, 2N5832	2N5833
VEBO Emitter to Base Voltage	5.0 V	5.0 V	6.0 V
VCBO Collector to Base Voltage	120 V	160 V	200 V
VCEO Collector to Emitter Voltage	100 V	140 V	180 V
IC Collector Current	600 mA	600 mA	600 mA

TO92-1 Package



ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	2N5830		2N5831		UNITS	TEST CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
I_{CBO}	Collector Cutoff Current		50		50	nA	$V_{CB} = 100 \text{ V}, I_E = 0$
			25		50	nA	$V_{CB} = 120 \text{ V}, I_E = 0$
I_{EBO}	Emitter Cutoff Current		50		25	μA	$V_{CB} = 100 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$
BV_{CBO}	Collector to Base Breakdown Voltage	120		160		V	$V_{CB} = 120 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$ $V_{EB} = 4.0 \text{ V}, I_C = 0$ $I_C = 100 \mu\text{A}, I_E = 0$
BV_{EBO}	Emitter to Base Breakdown Voltage	5.0		5.0		V	$I_E = 10 \mu\text{A}, I_C = 0$
BV_{CEO}	Collector to Emitter Breakdown Voltage	100		140		V	$I_C = 1.0 \text{ mA}, I_B = 0$
h_{FE}	DC Current Gain (Note 4)	60		60			$V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$
		80	500	80	250		$V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ mA}$
		80		80			$V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$
$V_{BE(ON)}$	Base to Emitter "On" Voltage		0.8		0.8	V	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V}$
$V_{BE(sat)}$	Base to Emitter Saturation Voltage (Note 4)		0.8		0.8	V	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$
			1.0		1.0	V	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$
			1.0		1.0	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage (Note 4)		0.15		0.15	V	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$
			0.20		0.20	V	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$
			0.25		0.25	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
h_{ie}	Input Resistance		6.0		6.0	k Ω	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
h_{oe}	Output Conductance		40		40	μmho	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
h_{fe}	Small Signal Current Gain	60		60			$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
C_{cb}	Collector to Base Capacitance		4.0		4.0	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$
$ h_{fe} $	Magnitude of Common Emitter High Frequency Current Gain	1.0	5.0	1.0	5.0		$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$
I_{CBO}	Collector Cutoff Current		50		10	nA	$V_{CB} = 120 \text{ V}, I_E = 0$
			25		25	μA	$V_{CB} = 160 \text{ V}, I_E = 0$
I_{EBO}	Emitter Cutoff Current		50		50	μA	$V_{CB} = 120 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$
BV_{CBO}	Collector to Base Breakdown Voltage	160		200		V	$V_{CB} = 160 \text{ V}, I_E = 0, T_A = 100^\circ\text{C}$ $V_{EB} = 4.0 \text{ V}, I_C = 0$ $V_{EB} = 5.0 \text{ V}, I_C = 0$
BV_{EBO}	Emitter to Base Breakdown Voltage	5.0		6.0		V	$I_C = 100 \mu\text{A}, I_E = 0$
BV_{CEO}	Collector to Emitter Breakdown Voltage	140		180		V	$I_E = 10 \mu\text{A}, I_C = 0$ $I_C = 1.0 \text{ mA}, I_B = 0$
h_{FE}	DC Current Gain (Note 4)	125		50			$V_{CE} = 5.0 \text{ V}, I_C = 1.0 \text{ mA}$
		175	500	50	250		$V_{CE} = 5.0 \text{ V}, I_C = 10 \text{ mA}$
		150		50			$V_{CE} = 5.0 \text{ V}, I_C = 50 \text{ mA}$
$V_{BE(ON)}$	Base to Emitter "On" Voltage		0.8		0.8	V	$I_C = 1.0 \text{ mA}, V_{CE} = 5.0 \text{ V}$
$V_{BE(sat)}$	Base to Emitter Saturation Voltage (Note 4)		0.8		0.8	V	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$
			1.0		1.0	V	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$
			1.0		1.0	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage (Note 4)		0.15		0.15	V	$I_C = 1.0 \text{ mA}, I_B = 0.1 \text{ mA}$
			0.20		0.20	V	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$
			0.25		0.25	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
h_{ie}	Input Resistance		6.0		6.0	k Ω	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
h_{oe}	Output Conductance		40		40	μmho	$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
h_{fe}	Small Signal Current Gain	125		50			$I_C = 1.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 1.0 \text{ kHz}$
C_{cb}	Collector to Base Capacitance		4.0		4.0	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$
$ h_{fe} $	Magnitude of Common Emitter High Frequency Current Gain	1.0	5.0	1.0	5.0		$I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$