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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**
V_{EBO}	Emitter to Base Voltage	5.0 V	5.0 V	6.0 V
V_{CBO}	Collector to Base Voltage	120 V	160 V	200 V
V_{CEO}	Collector to Emitter Voltage	100 V	140 V	180 V
I_C	Collector Current	600 mA	600 mA	600 mA

TO92-1 Package



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

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

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