

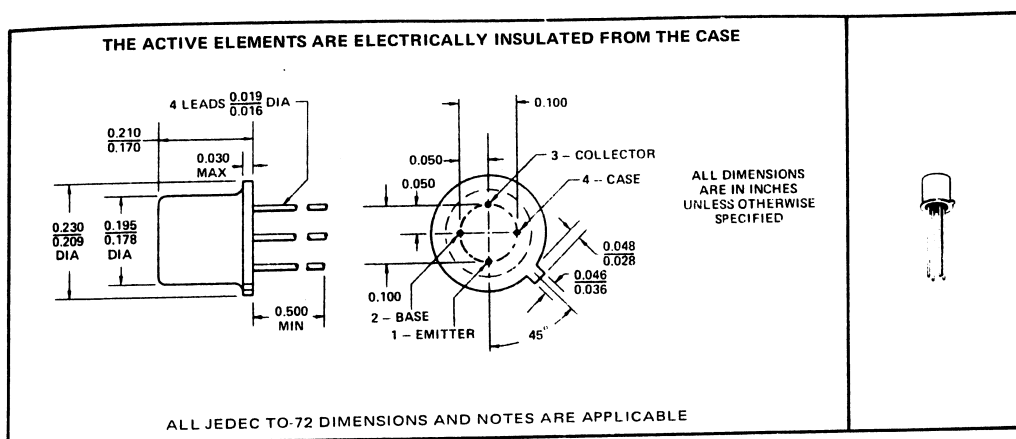
TYPES 2N4260, 2N4261
P-N-P SILICON TRANSISTORS

BULLETIN NO. DL-S 7311933, JUNE 1973

DESIGNED FOR VHF AND UHF AMPLIFIER APPLICATIONS

- High f_T . . . 2 GHz Min (2N4261)
- Low Capacitances . . . 2.5 pF Max C_{cb} and C_{eb}
- Calculated f_{max} † . . . 1.27 GHz Min (2N4261)

*mechanical data



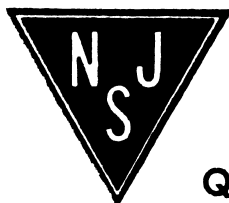
*absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

Collector-Base Voltage	-15 V
Collector-Emitter Voltage (See Note 1)	-15 V
Emitter-Base Voltage	-4.5 V
Continuous Collector Current	-30 mA
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 2)	200 mW
Storage Temperature Range	-65°C to 200°C
Lead Temperature 1/16 Inch from Case for 10 Seconds	230°C

NOTES: 1. This value applies between 0 and 30 mA collector current when the base-emitter diode is open-circuited.
2. Derate linearly to 200°C free-air temperature at the rate of 1.14 mW/°C.

*JEDEC registered data. This data sheet contains all applicable registered data in effect at the time of publication.

†Maximum Frequency of Oscillation may be calculated from the equation: $f_{max} \text{ (MHz)} = \frac{200}{\sqrt{r_b' C_c \text{ (ps)}}} \sqrt{f_T \text{ (MHz)}}$



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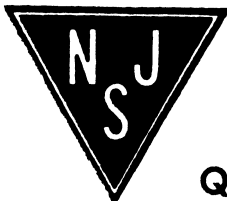
TYPES 2N4260, 2N4261 P-N-P SILICON TRANSISTORS

*electrical characteristics at 25°C free-air temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	2N4260		2N4261		UNIT
		MIN	MAX	MIN	MAX	
$V_{(BR)CBO}$ Collector-Base Breakdown Voltage	$I_C = -10 \mu A, I_E = 0$	-15		-15		V
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = -10 mA, I_B = 0$, See Note 3	-15		-15		V
$V_{(BR)EBO}$ Emitter-Base Breakdown Voltage	$I_E = -10 \mu A, I_C = 0$	-4.5		-4.5		V
I_{CEV} Collector Cutoff Current	$V_{CE} = -10 V, V_{BE} = 2 V$		-5		-5	nA
	$V_{CE} = -5 V, V_{BE} = 0.4 V$		-50		-50	nA
	$V_{CE} = -10 V, V_{BE} = 2 V, T_A = 150^\circ C$		-5		-5	μA
I_{BEV} Base Cutoff Current	$V_{CE} = -10 V, V_{BE} = 2 V$		5		5	nA
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = -1 V, I_C = -1 mA$	25		25		
	$V_{CE} = -1 V, I_C = -10 mA$	30	150	30	150	
	$V_{CE} = -2 V, I_C = -30 mA$, See Note 3	20		20		
V_{BE} Base-Emitter Voltage	$V_{CE} = -1 V, I_C = -1 mA$		-0.8		-0.8	V
	$V_{CE} = -1 V, I_C = -10 mA$, See Note 3		-1		-1	V
$V_{CE(sat)}$ Collector-Emitter Saturation Voltage	$I_B = -0.1 mA, I_C = -1 mA$		-0.15		-0.15	V
	$I_B = -1 mA, I_C = -10 mA$, See Note 3		-0.35		-0.35	V
$ h_{fe} $ Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = -4 V, I_C = -5 mA, f = 100 MHz$	12		15		
	$V_{CE} = -10 V, I_C = -10 mA, f = 100 MHz$	16		20		
f_T Transition Frequency	$V_{CE} = -4 V, I_C = -5 mA$	1.2		1.5		GHz
	$V_{CE} = -10 V, I_C = -10 mA$, See Note 4	1.6		2		GHz
C_{cb} Collector-Base Capacitance	$V_{CB} = -4 V, I_E = 0$, $f = 100 kHz$ to 1 MHz, See Note 5		2.5		2.5	pF
C_{eb} Emitter-Base Capacitance	$V_{EB} = -0.5 V, I_C = 0$, $f = 100 kHz$ to 1 MHz, See Note 5		2.5		2.5	pF
$\tau_b'C_c$ Collector-Base Time Constant	$V_{CE} = -4 V, I_C = -5 mA, f = 31.8 MHz$		35		60	ps
	$V_{CE} = -10 V, I_C = -10 mA, f = 31.8 MHz$		30		50	ps

- NOTES: 3. These parameters must be measured using pulse techniques. $t_w = 300 \mu s$, duty cycle $< 2\%$.
4. To obtain f_T , the $|h_{fe}|$ response is extrapolated at the rate of -6 dB per octave from $f = 100 MHz$ to the frequency where $|h_{fe}| = 1$.
5. C_{cb} and C_{eb} measurements employ a three-terminal capacitance bridge incorporating a guard circuit. The third electrode (base or collector, respectively) and the case are connected to the guard terminal of the bridge.

*JEDEC registered data



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