New Jersey Semi-Conductor Products, Inc.

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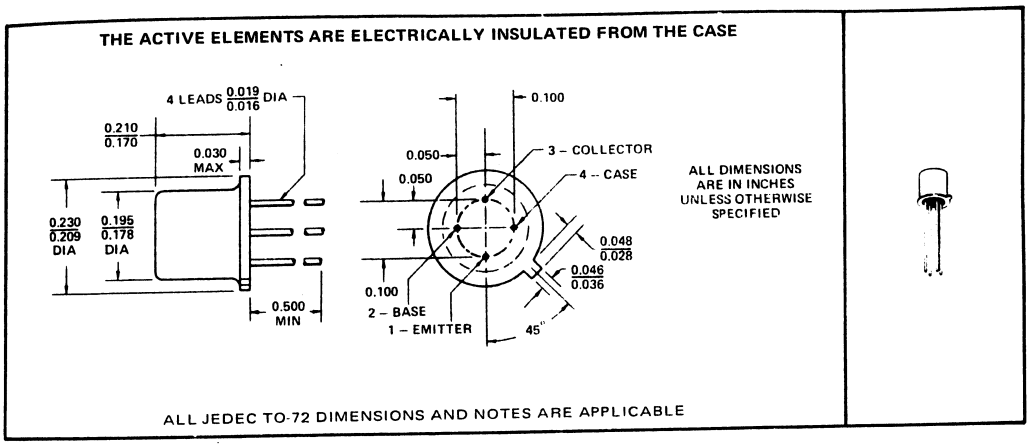
TYPES 2N4260, 2N4261
P-N-P SILICON TRANSISTORS

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: $f_{max}\ (MHz) = 200\sqrt{\frac{f_T\ (MHz)}{r_b' C_c (ps)}}$

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

PARAMETER		TEST CONDITIONS		2N4260 MIN	2N4260 MAX	2N4261 MIN	2N4261 MAX	UNIT
$V_{(BR)CBO}$	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,	$T_A = 150°C$		−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	See Note 3	30	150	30	150	
		$V_{CE} = -2$ V, $I_C = -30$ mA		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	
$V_{CE(sat)}$	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	
$\lvert h_{fe} \rvert$	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	See Note 4	1.2		1.5		
		$V_{CE} = -10$ V, $I_C = -10$ mA		1.6		2		
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	
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	
$r_b'C_c$	Collector-Base Time Constant	$V_{CE} = -4$ V, $I_C = -5$ mA,	f = 31.8 MHz		35		60	
		$V_{CE} = -10$ V, $I_C = -10$ mA,	f = 31.8 MHz		30		50	

NOTES: 3. These parameters must be measured using pulse techniques. $t_w = 300\ \mu s$, duty cycle < 2%.
4. To obtain f_T, the $\lvert h_{fe} \rvert$ response is extrapolated at the rate of −6 dB per octave from f = 100 MHz to the frequency at which $\lvert h_{fe} \rvert = 1$.
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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