

New Jersey Semi-Conductor Products, Inc.

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SPRINGFIELD, NEW J
U.S.A.

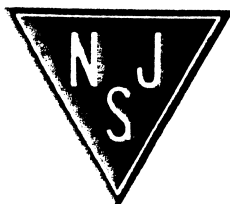
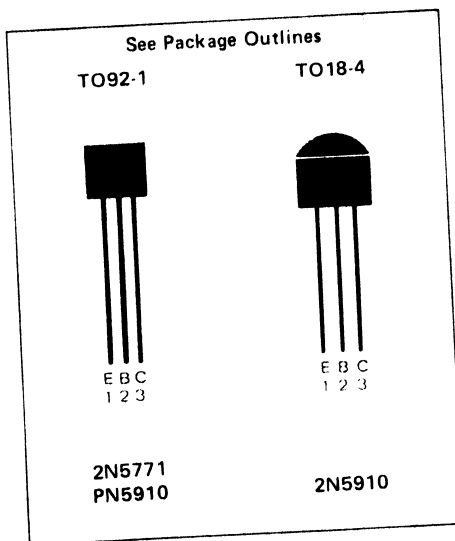
2N5771 • 2N5910 • PN5910
PNP ULTRA HIGH SPEED SATURATED LOGIC SWITCHES
DIFFUSED SILICON PLANAR* EPITAXIAL TRANSISTOR

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- $P_D \dots 625 \text{ mW} @ T_A = 25^\circ \text{C}$ (2N5771, PN5910)
- $t_{on} \dots 15 \text{ ns (MAX)} @ 10 \text{ mA}$, $t_{off} \dots 20 \text{ ns (MAX)} @ 10 \text{ mA}$
- $\tau_s \dots 20 \text{ ns (MAX)} @ 10 \text{ mA}$
- $V_{CEO} \dots 15 \text{ V (MIN)}$ (2N5771), 20 V (MIN) (2N/PN5910)
- **COMPLEMENTS** ... 2N5769, 2N5772, (TO92); 2N3646, 2N4275 (TO18)

ABSOLUTE MAXIMUM RATINGS (Note 1)

	2N5910	2N5771, PN5910
Maximum Temperatures		
Storage Temperature	-55°C to $+135^\circ \text{C}$	-55°C to $+150^\circ \text{C}$
Operating Junction Temperature	135°C	150°C
Lead Temperature (10 seconds)	260°C	260°C
Maximum Power Dissipation (Notes 2 & 3)		
Total Dissipation at 25°C Ambient Temperature at 25°C Case Temperature	0.310 W	0.625 W 1.0 W
Maximum Voltages and Current	2N/PN5910	2N5771
V_{CBO} Collector to Base Voltage		-15 V
V_{CEO} Collector to Emitter Voltage	-20 V	-15 V
V_{EBO} Emitter to Base Voltage	-4.5 V	-4.5 V
V_{CES} Collector to Emitter Voltage	-20 V	
I_C Collector Current	50 mA	50 mA



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

SYMBOL	CHARACTERISTIC	2N/PN5910		2N5771		UNITS	TEST CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
I _{CES}	Collector Reverse Current		10			nA	V _{CE} = -10 V, V _{BE} = 0
				10		nA	V _{CE} = -8.0 V, V _{BE} = 0
			5.0			μA	V _{CE} = -10 V, V _{BE} = 0, T _A = 65°C
I _{EBO}	Emitter Cutoff Current		100		5.0	μA	V _{CE} = -8.0 V, V _{BE} = 0, T _A = 125°C
				1.0		μA	V _{EB} = -4.0 V, I _C = 0
I _B	Base Current		10			nA	V _{CE} = -4.5 V, I _C = 0
BV _{CES}	Collector to Emitter Breakdown Voltage	-20		-15		V	V _{CE} = -6.0 V, V _{EB} = 0 I _C = 100 μA, V _{BE} = 0
BV _{CEO}	Collector to Emitter Breakdown Voltage (Note 5)	-20		-15		V	I _C = 3.0 mA, I _B = 0
BV _{CBO}	Collector to Base Breakdown Voltage	-20		-15		V	I _C = 100 μA, I _E = 0
BV _{EBO}	Emitter to Base Breakdown Voltage	-4.5		-4.5		V	I _E = 100 μA, I _C = 0
h _{FE}	DC Current Gain (Note 5)	15		35			V _{CE} = -0.5 V, I _C = 1.0 mA
		30	120	50	120		V _{CE} = -0.3 V, I _C = 10 mA
		30		40			V _{CE} = -1.0 V, I _C = 50 mA
				20			I _C = 10 mA, V _{CE} = -0.3 V, T _A = -55°C
V _{CE(sat)}	Collector Emitter Saturation Voltage (Note 5)		-0.15		-0.18	V	I _C = 10 mA, I _B = 1.0 mA
					-0.15	V	I _C = 1.0 mA, I _B = 0.1 mA
V _{BE(sat)}	Base to Emitter Saturation Voltage (Note 5)		-0.5		-0.6	V	I _C = 50 mA, I _B = 5.0 mA
					-0.8	V	I _C = 1.0 mA, I _B = 0.1 mA
		-0.75	-0.95	-0.8	-0.95	V	I _C = 10 mA, I _B = 1.0 mA
			-1.5		-1.5	V	I _C = 50 mA, I _B = 5.0 mA
C _{eb}	Emitter to Base Capacitance		3.5		3.5	pF	I _C = 0, V _{EB} = -0.5 V, f = 140 kHz
C _{cb}	Collector to Base Capacitance		3.0		3.0	pF	I _E = 0, V _{CB} = -5.0 V, f = 140 kHz
h _{FE}	High Frequency Current Gain	7.0		8.5			I _C = 10 mA, V _{CE} = -10 V, f = 100 MHz
t _{on}	Turn On Time (see test circuit no. 348)		15		15	ns	I _C = 10 mA, I _{B1} = 1.0 mA
t _{off}	Turn Off Time (see test circuit no. 348)		20		20	ns	I _C = 10 mA, I _{B1} = I _{B2} = 1.0 mA
t _s	Charge Storage Time (see test circuit no. 234)		20		20	ns	I _C = 10 mA, I _{B1} = I _{B2} = 10 mA
I _{CBO}	Collector to Base Cutoff Current				10	ns	V _{CB} = -8.0 V, I _C = 0