



NEC

NEW ENGLAND SEMICONDUCTOR

NSP6190

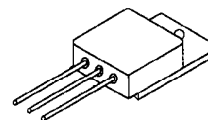
PRELIMINARY

MEDIUM-POWER PNP SILICON TRANSISTORS

...designed for switching and wide band amplifier applications.

- LOW COLLECTOR-EMITTER SATURATION VOLTAGE
- DC CURRENT GAIN SPECIFIED TO 5 AMPERES
- EXCELLENT SAFE OPERATING AREA

TO-257AA



5 AMPERE

POWER TRANSISTOR
PNP SILICON

80-100 VOLTS
25 WATTS

MAXIMUM RATINGS*

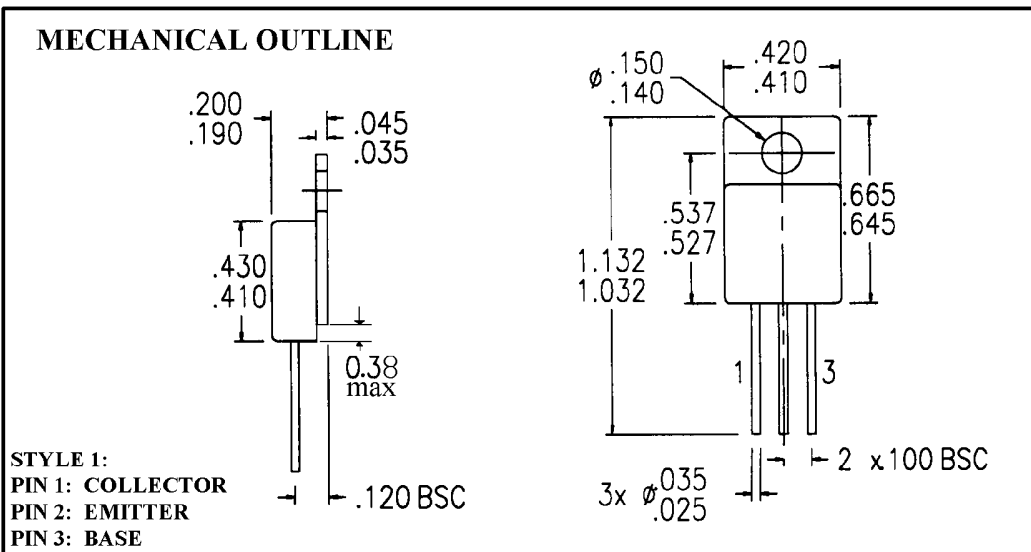
RATINGS	SYMBOL	NSP6190	UNITS
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	80	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Collector Current -- Continuous	I_C	5.0	Adc
Base Current	I_B	1.0	Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	25 200	W mW/ $^\circ\text{C}$
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

CHARACTERISTICS	SYMBOL	MAX.	UNITS
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.0	$^\circ\text{C/W}$

*Indicates JEDEC Registration Data

MECHANICAL OUTLINE



NEW ENGLAND SEMICONDUCTOR

6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-046 REV: --



NSP6190

ELECTRICAL CHARACTERISTICS ($T_c = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) $I_C = 50 \text{ mA}_{dc}$, $I_B = 0$	$V_{CEO(sus)}$	80		Vdc
Collector Cutoff Current $V_{CE} = 75 \text{ Vdc}$, $I_B = 0$	I_{CEO}		100	μAdc
Collector Cutoff Current $V_{CE} = 75 \text{ V}_{CB}$, $V_{BE(Off)} = 1.5 \text{ Vdc}$ $V_{CE} = 75 \text{ V}_{CB}$, $V_{BE(Off)} = 1.5 \text{ Vdc}$ $T_C = 150^\circ$	I_{CEX}		10 1.0	μAdc mAdc
Collector Cutoff Current $V_{CB} = 80 \text{ Vdc}$, $I_E = 0$	I_{CBO}		10	μAdc
Emitter Cutoff Current $V_{BE} = 6.0 \text{ Vdc}$, $I_C = 0$	I_{EBO}		100	μAdc

ON CHARACTERISTICS (1)

DC Current Gain $I_C = 500 \text{ mA dc}, V_{CE} = 2.0 \text{ V dc}$ $I_C = 2.0 \text{ A dc}, V_{CE} = 2.0 \text{ V dc}$ $I_C = 5.0 \text{ A dc}, V_{CE} = 2.0 \text{ V dc}$	h_{FE} 	 	 	
Collector-Emitter Saturation Voltage $I_C = 2.0 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 5.0 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{CE(sat)}$ 	 	 	
Base-Emitter Saturation Voltage $I_C = 2.0 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 5.0 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{BE(sat)}$ 	 	 	

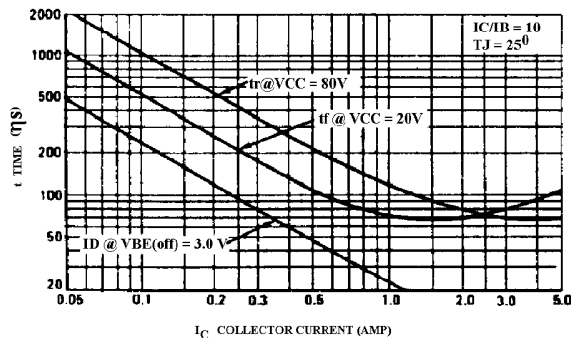
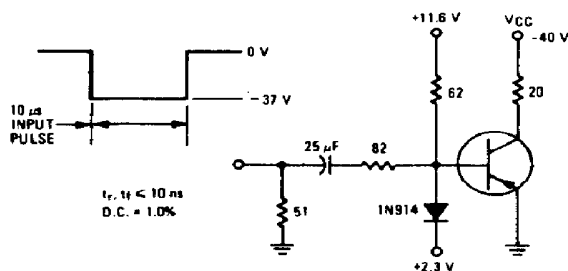
DYNAMIC CHARACTERISTICS

Current-Gain -- Bandwidth Product (2) $I_C = 0.5 \text{ Adc}$, $V_{CE} = 10 \text{ Vdc}$, $f_{\text{TEST}} = 10 \text{ MHz}$	f_T	30		MHz
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$	C_{obo}		300	p^f
Input Capacitance $V_{BE} = 2.0 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$	C_{ibo}		1250	p^f

SWITCHING CHARACTERISTICS

Delay Time	$V_{CC} = 40 \text{ Vdc}$, $V_{BE(off)} = 3.0 \text{ Vdc}$	t_d	100	ηs
Rise Time	$I_C = 2.0 \text{ Adc}$, $I_{B1} = 0.2 \text{ Adc}$	t_r	100	ηs
Storage Time	$V_{CC} = 40 \text{ Vdc}$, $I_C = 2.0 \text{ Adc}$,	t_s	2.0	μs
Fall Time	$I_{B1} = I_{B2} = 0.2 \text{ Adc}$	t_f	200	ηs

(1)Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.

$$(2) f_T = |h_{fe}| = f_{\text{Test}}$$


NEW ENGLAND SEMICONDUCTOR

6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-046 REV: --