



NES

NEW ENGLAND SEMICONDUCTOR

NSP5428
NSP5430

PRELIMINARY

MEDIUM-POWER NPN SILICON TRANSISTORS

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

- LOW COLLECTOR-EMITTER SATURATION VOLTAGE
- DC CURRENT GAIN SPECIFIED TO 7 AMPERES
- EXCELLENT SAFE OPERATING AREA

MAXIMUM RATINGS*

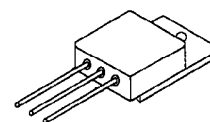
RATINGS	SYMBOL	NSP5428	NSP5430	UNITS
Collector-Emitter Voltage	V_{CEO}	80	100	Vdc
Collector-Base Voltage	V_{CBO}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current -- Continuous	I_C	7.0		Adc
Base Current	I_B	1.0		Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	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

TO-257AA

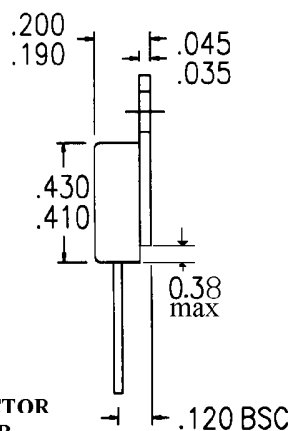


7 AMPERE

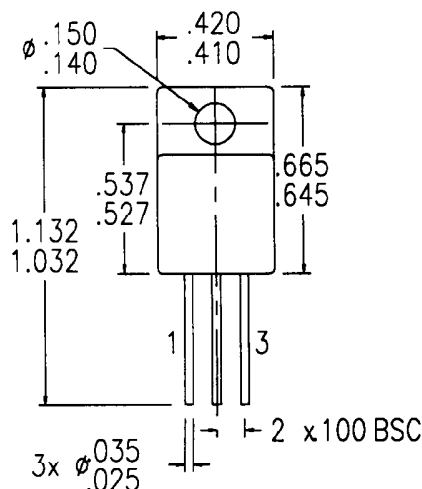
POWER TRANSISTOR
NPN SILICON

80-100 VOLTS
25 WATTS

MECHANICAL OUTLINE



STYLE 1:
PIN 1: COLLECTOR
PIN 2: EMITTER
PIN 3: BASE



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1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-003 REV: --



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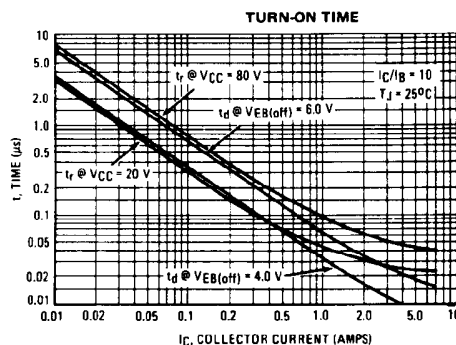
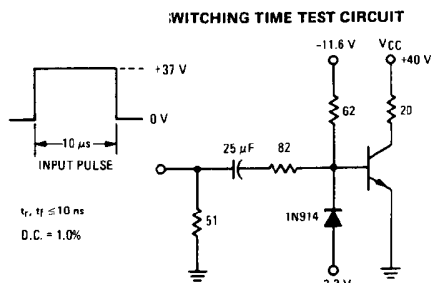
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NSP5428 NSP5430

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

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) $I_C = 50\text{ mAdc}$, $I_B = 0$	$V_{CE(sus)}$	80 100		Vdc
Collector Cutoff Current $V_{CE} = 75\text{ Vdc}$, $I_B = 0$ $V_{CE} = 90\text{ Vdc}$, $I_B = 0$	I_{CEO}		100 100	μAdc
Collector Cutoff Current $V_{CE} = 75\text{ Vdc}$, $V_{EB(off)} = 1.5\text{ Vdc}$ $V_{CE} = 90\text{ Vdc}$, $V_{EB(off)} = 1.5\text{ Vdc}$ $V_{CE} = 75\text{ Vdc}$, $V_{EB(off)} = 1.5\text{ Vdc}$, $T_C = 150^\circ\text{C}$ $V_{CE} = 90\text{ Vdc}$, $V_{EB(off)} = 1.5\text{ Vdc}$, $T_C = 150^\circ\text{C}$	I_{CEX}		10 10 1.0 1.0	μAdc mA
Collector Cutoff Current $V_{CB} = \text{Rated } V_{CB}$, $I_E = 0$	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 $I_C = 500\text{ mAdc}$, $V_{CE} = 2.0\text{ Vdc}$ $I_C = 2.0\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$ $I_C = 5.0\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$	h_{FE}	60 60 40	240	-
Collector-Emitter Saturation Voltage $I_C = 2.0\text{ Adc}$, $I_B = 0.2\text{ Adc}$ $I_C = 7.0\text{ Adc}$, $I_B = 0.7\text{ Adc}$	$V_{CE(sat)}$		0.9 1.5	Vdc
Base-Emitter Saturation Voltage $I_C = 2.0\text{ Adc}$, $I_B = 0.2\text{ Adc}$ $I_C = 7.0\text{ Adc}$, $I_B = 0.7\text{ Adc}$	$V_{BE(sat)}$		1.5 2.2	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain-Bandwidth Product $I_C = 500\text{ mAdc}$, $V_{CE} = 10\text{ Vdc}$, $f = 10\text{ MHz}$	f_T	30		MHz
Output Capacitance $V_{CB} = 10\text{ Vdc}$, $I_E = 0$, $f = 100\text{ kHz}$	C_{ob}		250	p^F
Input Capacitance $V_{BE} = 2.0\text{ Vdc}$, $I_C = 0$, $f = 100\text{ kHz}$	C_{ib}		1000	p^F
SWITCHING CHARACTERISTICS				
Delay Time	$V_{CC} = 40\text{ Vdc}$, $V_{EB(off)} = 3.0\text{ Vdc}$	t_d	100	ns
Rise Time	$I_C = 2.0\text{ Adc}$, $I_{B1} = 200\text{ mAdc}$	t_r	100	ns
Storage Time	$V_{CC} = 40\text{ Vdc}$, $I_C = 2.0\text{ Adc}$	t_s	2.0	μs
Fall Time	$I_{B1} = I_{B2} = 200\text{ mAdc}$	t_f	200	ns

(1) Pulse Test: Pulse Width $\approx 300\mu\text{s}$, Duty Cycle $\approx 2.0\%$.



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