



NES
NEW ENGLAND SEMICONDUCTOR

NS5664

NPN PLANAR POWER TRANSISTOR

- High Voltage
- Fast Switching
- Low Saturation Voltage
- High Gain
- Off Line Power Supply Applications

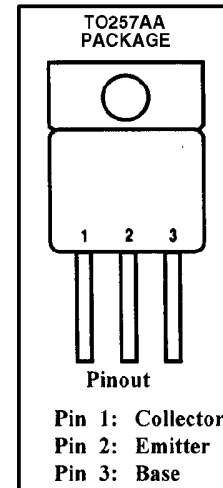
5 AMP
250 VOLTS

MAXIMUM RATINGS

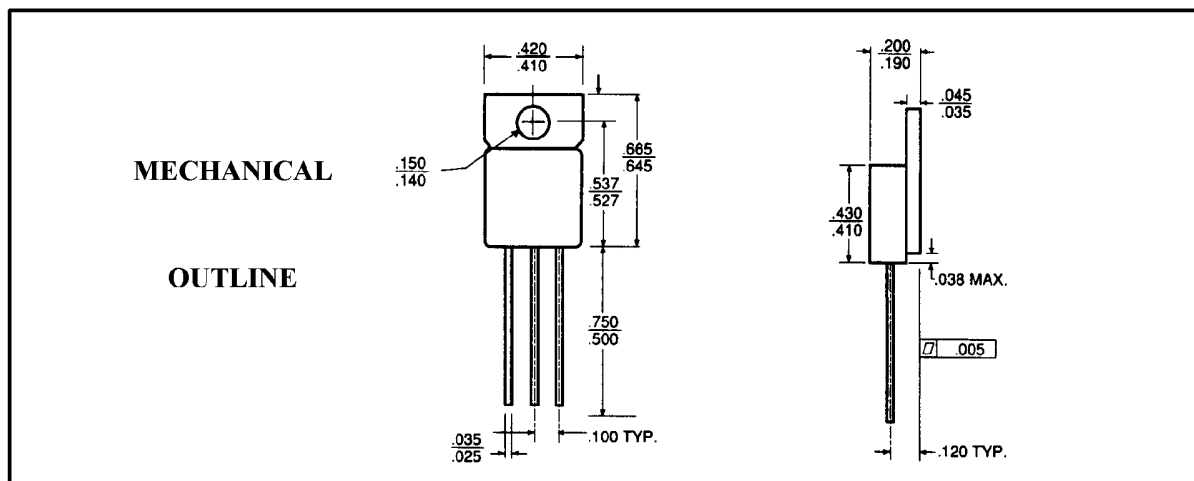
Rating	Symbol	NSG5664	Unit
Collector-Emitter Voltage	V_{CEO}	200	Vdc
Collector-Base	V_{CB}	250	Vdc
Emitter-Base Voltage	V_{EB}	6	Vdc
Collector Current -- Continuous	I_C	5	Adc
Peak (1)		10	
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	2.5 .003	Watts W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$
Unclamped Inductive Load	E_{SB}	1.25	mJ

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.3	$^\circ\text{C}/\text{W}$



(1) Pulse Test: Pulse Width = 10 ms, Duty Cycle \leq 10%.



This product is available screened to MIL-S-19500 through "S" level, or to a Customer Source Control Document.

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

T4-4.8-860-027 REV: --



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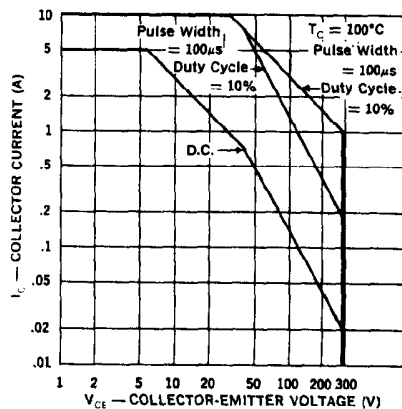
NS5664

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

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) $I_C = 10\text{ mA}$, $I_B = 0$, $R_{BE} = 100\text{ ohms}$	$V_{CE(SUS)}$	200		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 200\text{V}$, $I_B = -0$ $V_{CE} = 250\text{V}$, $I_B = 0$	I_{CBO}		0.1 1.0	μA mA
Collector-Emitter Cutoff Current $V_{CE} = \text{Rated } V_{CEO}$, $V_{EB} = 0$	I_{CES}		0.2	μA
Emitter-Base Cutoff Current $V_{EB} = 60\text{ V}$, $I_C = 0$	I_{EBO}		10	μA
ON CHARACTERISTICS (1)				
DC Current Gain $I_C = 0.5\text{ A}$, $V_{CE} = 2.0\text{ V}$ $I_C = 3.0\text{ A}$, $V_{CE} = 5.0\text{ V}$	h_{FE}	40 40	120	
Collector-Emitter Saturation Voltage $I_C = 3.0\text{ A}$, $I_B = 0.3\text{ A}$ $I_C = 5.0\text{ A}$, $I_B = 1.0\text{ A}$	$V_{CE(sat)}$		0.4 1.0	Vdc Vdc
Base-Emitter On Voltage $I_C = 3.0\text{ A}$, $I_B = 0.3\text{ A}$ $I_C = 5.0\text{ A}$, $I_B = 1.0\text{ A}$	$V_{BE(on)}$		1.2 1.5	Vdc Vdc
DYNAMIC CHARACTERISTICS				
Output Capacitance $V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{OB}		90	p^{F}
Current-Gain-Bandwidth Product $I_C = 0.5\text{ A}$, $V_{CE} = 5\text{ V}$, $f = 1.0\text{ MHz}$	f_T	20		

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

**FORWARD BIAS
SAFE OPERATING AREA**



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