



NES

NEW ENGLAND SEMICONDUCTOR

NES3716Z

NPN SILICON POWER TRANSISTOR

- Medium Speed Switching
- Amplifier
- Excellent Safe Operating Area
- Total Switching Time @ 3A, 1.15μs

10 AMPERE
POWER TRANSISTOR
NPN SILICON

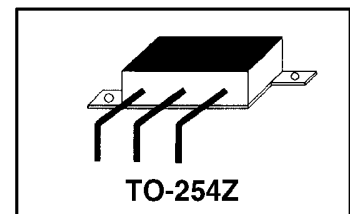
MAXIMUM RATINGS

Rating	Symbol	NES3716Z	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base	V_{CB}	100	Vdc
Emitter-Base Voltage	V_{EB}	7.0	Vdc
Collector Current -- Continuous	I_C	10.0	Adc
Peak (1)			
Base Current -- Continuous	I_B	4.0	Adc
Total Power Dissipation	P_D	115	Watts
@ $T_C = 25^\circ\text{C}$		0.657	
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

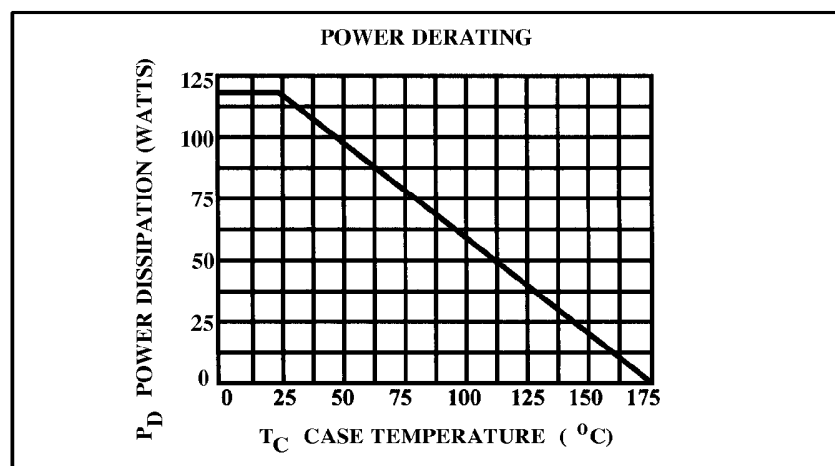
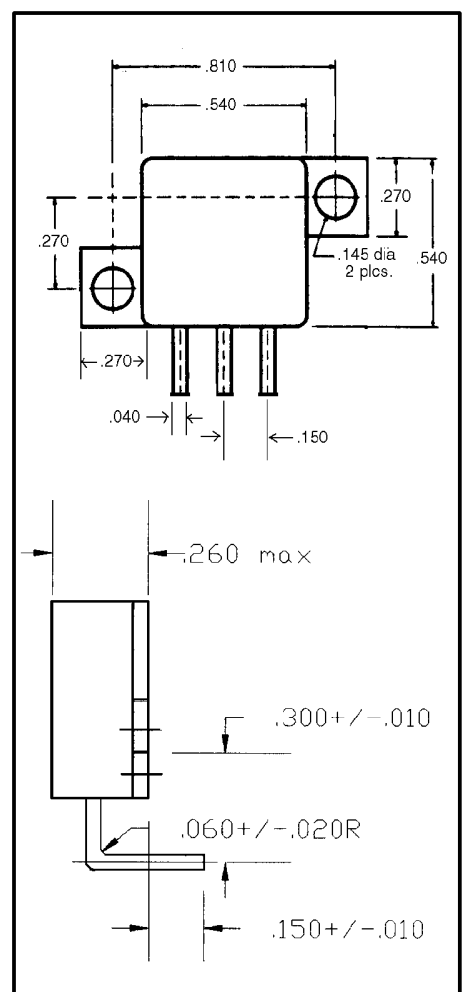
THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
Junction-To-Free-Air Thermal Resistance	$R_{\theta JA}$		$^\circ\text{C/W}$

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



MECHANICAL OUTLINE



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



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

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage $I_C = 200 \text{ mAdc}, I_B = 0$	$V_{CEO(SUS)}$	80		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 100 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}, T_C = 150^{\circ}\text{C}$	I_{CEX} I_{CEX}		1.0 10.0	mAdc mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$	I_{EBO}		5.0	mAdc
ON CHARACTERISTICS (1)				
DC Current Gain $I_C = 1.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 3.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$	h_{FE}	50 30	150	
Collector-Emitter Saturation Voltage $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$	$V_{CE(sat)}$		1.0	Vdc
Base-Emitter Saturation Voltage $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$	$V_{BE(sat)}$		1.5	Vdc
DYNAMIC CHARACTERISTICS				
Small Signal Current Gain $V_{CE} = 10 \text{ Vdc}, I_C = 0.5 \text{ Adc}, f = 1.0 \text{ mhz}$	h_{fe}	4.0		
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1 \text{ mhz}$	C_{OBO}		500	pf

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

SX LEVEL RELIABILITY TESTING

100% SCREENING	GROUP A	GROUP B (Sample)	GROUP C (Sample)
Internal Visual Temp Cycle Thermal Response Constant Acceleration PIND Fine and Gross Leak HTRB Power Burn In	Visual and Mechanical Dc Static Tests 25°C DC Static Tests High Temp DC Static Tests Low Temp Dynamic Tests @ 25°C	Solderability Temp Cycle Fine and Gross Leak Bond Strength Intermittent Op Life Steady State Op Life Thermal Resistance Hi-Temp Life (non operating)	Physical Dimensions Thermal Shock Terminal Strength Hermetic Seal Moisture Resistance Shock Test Vibration Test Constant Acceleration Salt Atmosphere Operation Life

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