



NES

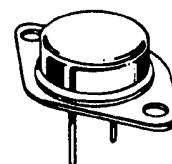
NEW ENGLAND SEMICONDUCTOR

NS11016

NPN SILICON DARLINGTON POWER TRANSISTORS

- GENERAL PURPOSE AMPLIFIER
- LOW FREQUENCY SWITCHING
- HIGH DC CURRENT GAIN
- MONOLITHIC CONSTRUCTION
- BUILT IN BASE EMITTER SHUNT RESISTORS
- CONFORMAL COATED

30 AMPERE NPN DARLINGTON POWER TRANSISTOR



TO-204AA

40 MIL PIN

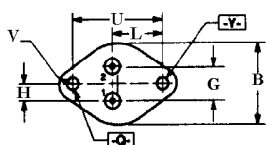
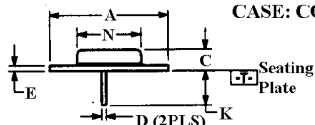
MAXIMUM RATINGS

RATINGS	SYMBOL	NS11016	UNITS
Collector-Emitter Voltage	V_{CEO}	120	Vdc
Collector-Base Voltage	V_{CB}	120	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current -- Continuous -- Peak(1)	I_C	30	Adc
Base Current -- Continuous	I_B	1.0	Adc
Total Power Dissipation @ $T_C = 25^\circ C$	P_D	200	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ C$

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

MECHANICAL OUTLINE

PIN 1: Base
PIN 2: EMITTER
CASE: COLLECTOR



DIM	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	38.86 REF		1.530 REF	
B	25.15	26.67	0.990	0.340
C	6.35	8.51	0.250	0.034
D	0.97	1.09	0.038	0.043
E	1.53	1.77	0.60	0.070
G	10.92 BSC		0.430 BSC	
H	5.46 BSC		0.215 BSC	
K	11.18	12.19	0.440	0.480
L	16.89 BSC		0.665 BSC	
N	19.31	21.08	0.760	0.830
Q	3.84	4.19	0.151	0.165
U	30.15 BSC		1.187 BSC	
V	3.33	4.77	0.131	0.188

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T4-4.8-860-041 REV: --



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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(1) $I_C = 100\text{mA dc}$, $I_B = 0$	$V_{CEO(sus)}$	120		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 120\text{Vdc}$, $R_{BE} = 1\text{k}\Omega$ $V_{CE} = 120\text{Vdc}$, $R_{BE} = 1\text{k}\Omega$ $T_C = 150^\circ\text{C}$	I_{CER}		1.0 5.0	 mA dc mA dc
Collector-Emitter Cutoff Current $V_{CE} = 50\text{Vdc}$, $I_B = 0$	I_{CEO}		1.0	mA dc
Emitter-Base Cutoff Current $V_{BE} = 5.0\text{Vdc}$, $I_C = 0$	I_{EBO}		5.0	mA dc
ON CHARACTERISTICS (1)				
DC Current Gain $I_C = 20\text{A dc}$, $V_{CE} = 5.0\text{Vdc}$ $I_C = 30\text{A dc}$, $V_{CE} = 5.0\text{Vdc}$	h_{FE}	1000 200		
Collector-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 0.2\text{A dc}$ $I_C = 30\text{A dc}$, $I_B = 0.3\text{A dc}$	$V_{CE(sat)}$		3.0 4.0	Vdc
Base-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 0.2\text{A dc}$ $I_C = 30\text{A dc}$, $I_B = 0.3\text{A dc}$	$V_{BE(sat)}$		3.5 5.0	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain -- Bandwidth Product $I_C = 10\text{A dc}$, $V_{CE} = 3.0\text{Vdc}$, $f = 1.0\text{MHz}$	$ h_{fe} $	4.0		MHz

(1) Pulse Test: Pulse Width = 300 μs , 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 (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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