



NES

NEW ENGLAND SEMICONDUCTOR

NSA5019

HIGH-POWER TRANSISTOR

MAXIMUM RATINGS

RATINGS	SYMBOL	2N5019	UNITS
Collector-Emitter Voltage	V_{CE0}	80	Vdc
Collector-Base Voltage	V_{CBO}	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current – Continuous	I_C	25	Adc
Peak		60	
Base Current	I_B	7.5	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	200	W
Derate Above 25°C		1.15	W/ $^\circ\text{C}$
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	$^\circ\text{JC}$	0.875	$^\circ\text{C/W}$

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

Characteristics	SYMBOL	Min	Max	UNITS
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage(1) $I_C = 200 \text{ mAdc}, I_B = 0$	$V_{CE0(sus)}$	80		Vdc
Collector Cutoff Current $V_{CE} = 40 \text{ Vdc}, I_B = 0$	I_{CEO}		20	mAdc
Collector Cutoff Current $V_{CE} = 80 \text{ Vdc}, V_{BE(off)} = 1.5$ $V_{CE} = 80 \text{ Vdc}, V_{BE(off)} = 1.5, T_C = 150^\circ\text{C}$	I_{CEX}		1.0 10	mAdc
Collector Cutoff Current $V_{CB} = 80 \text{ Vdc}, I_E = 0$	I_{CBO}		1.0	mAdc
Emitter Cutoff Current $V_{EB} = 5.0 \text{ Vdc}, I_C = 0$	I_{EBO}		1.0	mAdc

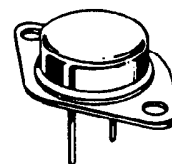
ON CHARACTERISTICS (1)

DC Current Gain(1) $I_C = 3.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 10 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 25 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	h_{FE}	35 70 4.0	100	-
Collector-Emitter Saturation Voltage $I_C = 15 \text{ Adc}, I_B = 1.5 \text{ Adc}$ $I_C = 25 \text{ Adc}, I_B = 6.25 \text{ Adc}$	$V_{CE(sat)}$		1.0 4.0	Vdc
Base-Emitter Saturation Voltage $I_C = 25 \text{ Adc}, V_{CE} = 6.25 \text{ Adc}$	$V_{BE(sat)}$		2.5	Vdc
Base-Emitter On Voltage $I_C = 10 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	$V_{BE(on)}$		1.0	Vdc

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

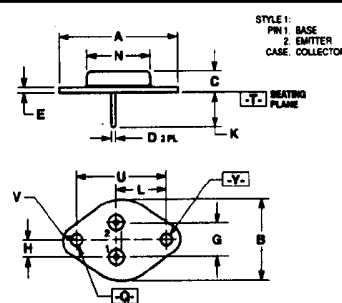
20 AMPERE SILICON POWER TRANSISTOR

80 Volts
200 Watts



TO-3

MECHANICAL OUTLINE



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	1.45	1.60	0.057	0.063
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

NEW ENGLAND SEMICONDUCTOR

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T4-4.8-860-054 REV: --