NEW ENGLAND SEMICONDUCTOR

2N3738
2N3739*

*also available as JAN, JANTX, JANTXV

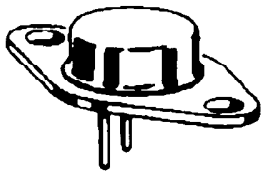
HIGH VOLTAGE SILICON POWER TRANSISTORS

...designed for high-speed switching, linear amplifier applications, high-voltage operational amplifiers, switching regulators, converters, inverters, deflection stages and high fidelity amplifiers.

- COLLECTOR -EMITTER SUSTAINING VOLTAGE
  $V_{CEO(sus)}$ = 225 Vdc @ I_C = 5.0 mAdc (2N3738)
  = 300 Vdc @ I_C = 5.0 mAdc (2N3739)
- DC CURRENT GAIN --
  h_{FE} = 40-200 @ I_C = 100 mAdc
- CURRENT-GAIN -- BANDWIDTH PRODUCT --
  f_T = 10 MHz (Min) @ I_C = 100 mAdc
- $I_{S/b}$ RATED TO 2.0 AMPERES

1.0 AMPERE
POWER TRANSISTORS
NPN SILICON

225, 300 VOLTS
20 WATTS

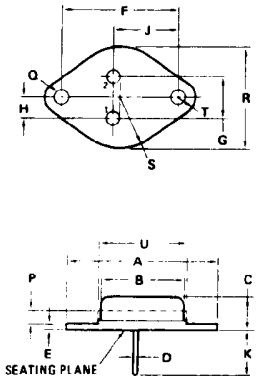


TO-66

MAXIMUM RATINGS

RATINGS	SYMBOL	2N3738	2N3739	UNITS
Collector-Emitter Voltage	V_{CEO}	225	300	Vdc
Collector-Base Voltage	V_{CB}	250	325	Vdc
Emitter-Base Voltage	V_{EB}	6.0		Vdc
Collector Current -- Continuous -- Peak	I_C	1.0 2.0		Adc
Base Current -- Continuous -- Peak	I_B	0.50 1.0		Adc
Total Power Dissipation @ $T_C = 25^0C$ Derate above 25^0C	P_D	20 0.133		W $W/^0C$
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-55 to +200		^0C

MECHANICAL OUTLINE



PIN 1: BASE
PIN 2: EMITTER
CASE: COLLECTOR

	MILLIMETER		INCHES	
DIM	MIN	MAX	MIN	MAX
B	11.94	12.70	0.470	0.500
C	6.35	8.64	0.250	0.340
D	0.71	0.86	0.028	0.034
E	1.27	1.91	0.050	0.075
F	24.33	24.43	0.958	0.962
G	4.83	5.33	0.190	0.210
H	2.41	2.67	0.095	0.105
J	14.48	14.99	0.570	0.590
K	9.14	-	0.360	-
P	-	1.27	-	0.050
Q	3.61	3.86	0.142	0.152
S	-	8.89	-	0.350
T	-	3.68	-	0.145
U	-	15.75	-	0.620

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

T4-4.8-860-361 REV: --

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ELECTRICAL CHARACTERISTICS ($T_C = 25^0C$ unless otherwise noted)

Characteristics		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage I_C = 5.0 mAdc, I_b = 0	2N3738 2N3739	$V_{CEO(sus)}$	225 300		Vdc
Collector Cutoff Current V_{CE} = 125 Vdc, I_B = 0 V_{CE} = 200 Vdc, I_B = 0	2N3738 2N3739	I_{CEO}		0.25 0.25	mAdc
Emitter Cutoff Current V_{EB} = 6.0 Vdc		I_{EBO}		0.1	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain I_C = 50 mAdc, V_{CE} = 10 Vdc I_C = 100 mAdc, V_{CE} = 10 Vdc I_C = 250 mAdc, V_{CE} = 10 Vdc		h_{FE}	30 40 25	- 200 -	
Collector-Emitter Saturation Voltage (1) I_C = 250 mAdc, I_B = 25 mAdc		$V_{CE(sat)}$		2.5	Vdc
Base-Emitter "ON" Voltage (1) I_C = 100 mAdc, = V_{CE} = 10 Vdc		$V_{BE(on)}$		1.0	Vdc
DYNAMIC CHARACTERISTICS					
Forward Current Transfer Ratio I_C = 100 mAdc, V_{CE} = 20 Vdc, f = 1.0 kHz		h_{fe}	35		
Output Capacitance V_{CB} = 100 Vdc, I_E = 0, f = 100 kHz		C_{ob}		20	p^F

(1)Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.

SX LEVEL RELIABILITY TESTING

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

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