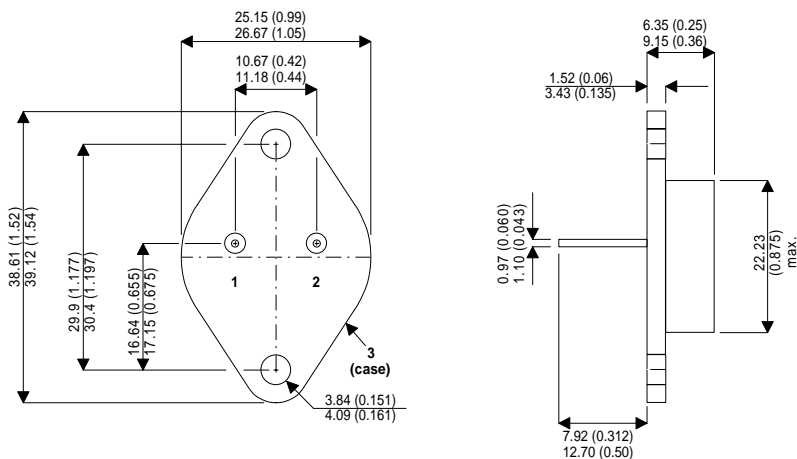


Dimensions in mm (inches).



Bipolar NPN Device in a Hermetically sealed TO3 Metal Package.

Bipolar NPN Device.

$V_{CEO} = 350V$

$I_C = 8A$

All Semelab hermetically sealed products can be processed in accordance with the requirements of BS, CECC and JAN, JANTX, JANTXV and JANS specifications.

TO3 (TO204AA)

PINOUTS

1 – Base 2 – Emitter Case - Collector

Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{CEO}^*				350	V
$I_{C(CONT)}$				8	A
h_{FE}	@ 5/3 (V_{CE} / I_C)	12		60	-
f_t			5M		Hz
P_D				125	W

* Maximum Working Voltage

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use.

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/498

Devices

2N6306

2N6308

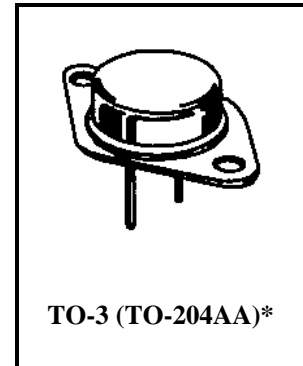
Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

Ratings	Symbol	2N6306	2N6308	Units
Collector-Emitter Voltage	V_{CEO}	250	350	Vdc
Collector-Base Voltage	V_{CBO}	500	700	Vdc
Emitter-Base Voltage	V_{EBO}	8.0		Vdc
Collector Current	I_C	8.0		Adc
Base Current	I_B	4.0		Adc
Total Power Dissipation	P_T	@ $T_C = +25^{\circ}\text{C}^{(1)}$	125	W
		@ $T_C = +100^{\circ}\text{C}^{(1)}$	62.5	W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200		$^{\circ}\text{C}$

1) Between $T_C = +25^{\circ}\text{C}$ and $T_C = +175^{\circ}\text{C}$, linear derating factor average = 0.833 $\text{W}/^{\circ}\text{C}$



*See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Base Breakdown Voltage $I_C = 100 \text{ mAdc}$	2N6306 2N6308	$V_{(BR)CEO}$	250 350	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 500 \text{ Vdc}; V_{BE} = 1.5 \text{ Vdc}$ $V_{CE} = 700 \text{ Vdc}; V_{BE} = 1.5 \text{ Vdc}$	2N6306 2N6308	I_{CEX}	5.0 5.0	μAdc
Collector-Emitter Cutoff Current $V_{CE} = 250 \text{ Vdc}$ $V_{CE} = 350 \text{ Vdc}$	2N6306 2N6308	I_{CEO}	50 50	μAdc
Emitter-Base Cutoff Current $V_{EB} = 8 \text{ Vdc}$		I_{EBO}	5.0	μAdc

2N6306, 2N6308 JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics		Symbol	Min.	Max.	Unit
DC CHARACTERISTICS ⁽²⁾					
Forward-Current Transfer Ratio $I_C = 3.0 \text{ Adc}; V_{CE} = 5.0 \text{ Vdc}$	2N6306	h_{FE}	15	75	
	2N6308		12	60	
$I_C = 8.0 \text{ Adc}; V_{CE} = 5.0 \text{ Vdc}$	2N6306		4		
	2N6308		3		
$I_C = 0.5 \text{ Adc}; V_{CE} = 5.0 \text{ Vdc}$	2N6306		15		
	2N6308		12		
Base-Emitter Voltage $V_{CE} = 5.0 \text{ Vdc}; I_C = 3.0 \text{ Adc}$	2N6306	$V_{BE(on)}$		1.3	Vdc
	2N6308			1.5	
Base-Emitter Saturated Voltage $I_B = 2.0 \text{ Adc}; I_C = 8.0 \text{ Adc}$	2N6306	$V_{BE(sat)}$		2.3	Vdc
$I_B = 2.67 \text{ Adc}; I_C = 8.0 \text{ Adc}$	2N6308			2.5	
Collector-Emitter Saturated Voltage $I_B = 2.0 \text{ Adc}; I_C = 8.0 \text{ Adc}$	2N6306	$V_{CE(sat)}$		5.0	Vdc
$I_B = 2.67 \text{ Adc}; I_C = 8.0 \text{ Adc}$	2N6308			5.0	
$I_B = 0.6 \text{ Adc}; I_C = 3.0 \text{ Adc}$	2N6306			0.8	
	2N6308			1.5	

DYNAMIC CHARACTERISTICS

Magnitude of Common-Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.3 \text{ Adc}, V_{CE} = 10 \text{ Vdc}, f = 1 \text{ MHz}$		$ h_{fe} $	5	30	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}, f = 1.0 \text{ kHz}$		h_{fe}	5		
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}		250	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 125 \text{ Vdc}; I_C = 3.0 \text{ Adc}; I_B = 0.6 \text{ Adc}$		t_{on}		0.6	μs
Turn-Off Time $V_{CC} = 125 \text{ Vdc}; I_C = 3.0 \text{ Adc}; I_{B1} = 0.6 \text{ Adc}; I_{B2} = 1.5 \text{ Adc}$		t_{off}		3.0	μs

SAFE OPERATING AREA

DC Tests					
$T_C = +25^\circ\text{C}; t = 1 \text{ s}, 1 \text{ cycle (See Figure 2 and 3 of MIL-PRF-19500/498)}$					
Test 1					
$V_{CE} = 15.6 \text{ Vdc}, I_C = 8 \text{ Adc}$					
Test 2					
$V_{CE} = 37 \text{ Vdc}, I_C = 3.4 \text{ Adc}$					
Test 3					
$V_{CE} = 200 \text{ Vdc}, I_C = 65 \text{ mAdc}$	2N6306				
$V_{CE} = 300 \text{ Vdc}, I_C = 25 \text{ mAdc}$	2N6308				

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