

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/498

Devices

2N6306

2N6308

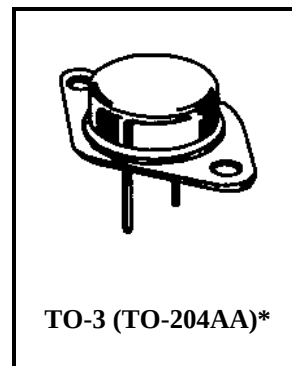
Qualified Level

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	@ $T_C = +25^{\circ}\text{C}$ ⁽¹⁾ @ $T_C = +100^{\circ}\text{C}$ ⁽¹⁾	125		W
		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 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
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio I _C = 3.0 Adc; V _{CE} = 5.0 Vdc	h _{FE}	15	75	
2N6306		12	60	
2N6308		4		
I _C = 8.0 Adc; V _{CE} = 5.0 Vdc		3		
2N6306		15		
2N6308		12		
Base-Emitter Voltage V _{CE} = 5.0 Vdc; I _C = 3.0 Adc	V _{BE(on)}		1.3	Vdc
2N6308			1.5	
Base-Emitter Saturated Voltage I _B = 2.0 Adc; I _C = 8.0 Adc	V _{BE(sat)}		2.3	Vdc
I _B = 2.67 Adc; I _C = 8.0 Adc			2.5	
2N6306	V _{CE(sat)}		5.0	Vdc
I _B = 2.67 Adc; I _C = 8.0 Adc			5.0	
2N6308			0.8	
I _B = 0.6 Adc; I _C = 3.0 Adc			1.5	

DYNAMIC CHARACTERISTICS

Magnitude of Common-Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 0.3 Adc, V _{CE} = 10 Vdc, f = 1 MHz	h _{fe}	5	30	
Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 0.5 Adc, V _{CE} = 4.0 Vdc, f = 1.0 kHz	h _{fe}	5		
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		250	pF

SWITCHING CHARACTERISTICS

Turn-On Time V _{CC} = 125 Vdc; I _C = 3.0 Adc; I _B = 0.6 Adc	t _{on}		0.6	μs
Turn-Off Time V _{CC} = 125 Vdc; I _C = 3.0 Adc; I _{B1} = 0.6 Adc; I _{B2} = 1.5 Adc	t _{off}		3.0	μs

SAFE OPERATING AREA

DC Tests				
T _C = +25°C; t = 1 s, 1 cycle (See Figure 2 and 3 of MIL-PRF-19500/498)				
Test 1				
V _{CE} = 15.6 Vdc, I _C = 8 Adc				
Test 2				
V _{CE} = 37 Vdc, I _C = 3.4 Adc				
Test 3				
V _{CE} = 200 Vdc, I _C = 65 mAdc	2N6306			
V _{CE} = 300 Vdc, I _C = 25 mAdc	2N6308			

2.) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.