NEW

NPN High Power Silicon Transistors

2N6249, 2N6250, 2N6251

AEROFLEX
A passion for performance.

Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/371
- TO-3 (TO-204AA) Package

Maximum Ratings

Ratings	Symbol	2N6249	2N6250	2N6251	Units
Collector - Emitter Voltage	V_{CEO}	200	275	350	Vdc
Collector - Base Voltage	V_{CBO}	300	375	450	Vdc
Emitter - Base Voltage	V_{EBO}	6.0			Vdc
Collector Current	I_C	10			Adc
Base Current	I_B	5.0			Adc
Total Power Dissipation @ T_A = +25 °C (1) @ T_A = +25 °C (2)	P_T	6.0 175			W W
Operating & Storage Temperature Range	T_{OP}, T_{stg}	-65 to +200			°C

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.25	°C/W

1) Derate linearly @ 34.2 mW/°C for $T_A > +25°C$

2) Derate linearly @ 1.0 mW/°C for $T_C > +75°C$

Electrical Characteristics

OFF Characteristics		Symbol	Mimimum	Maximum	Units
Collector-Emitter Breakdown Voltage I_C = 20 mAdc, L = 42 mH, f = 30-60 GHz (See Figure 10 of MIL-PRF-19500/510)	2N6249 2N6250 2N6251	$I_{(BR)CEO}$	- - -	200 275 350	Vdc
Collector-Emitter Breakdown Voltage I_C = 200 mAdc, L = 14 mH, f = 30-60 GHz (See Figure 10 of MIL-PRF-19500/510)	2N6249 2N6250 2N6251	$I_{(BR)CER}$	- - -	225 300 375	Vdc
Emitter-Base Cutoff Current V_{EB} = 6.0 Vdc		I_{EBO}	- - -	100	µAdc
Collector-Emitter Cutoff Current V_{CE} = 150 Vdc V_{CE} = 225 Vdc V_{CE} = 225 Vdc	2N6249 2N6250 2N6251	I_{CEO}	- - -	1.0	mAdc
Collector-Emitter Cutoff Current V_{CE} = 225 Vdc, V_{BE} = -1.5 Vdc V_{CE} = 300 Vdc, V_{BE} = -1.5 Vdc V_{CE} = 375 Vdc, V_{BE} = -1.5 Vdc	2N6249 2N6250 2N6251	I_{CEX}	- - -	100	µAdc

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METELICS

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Electrical Characteristics -con't

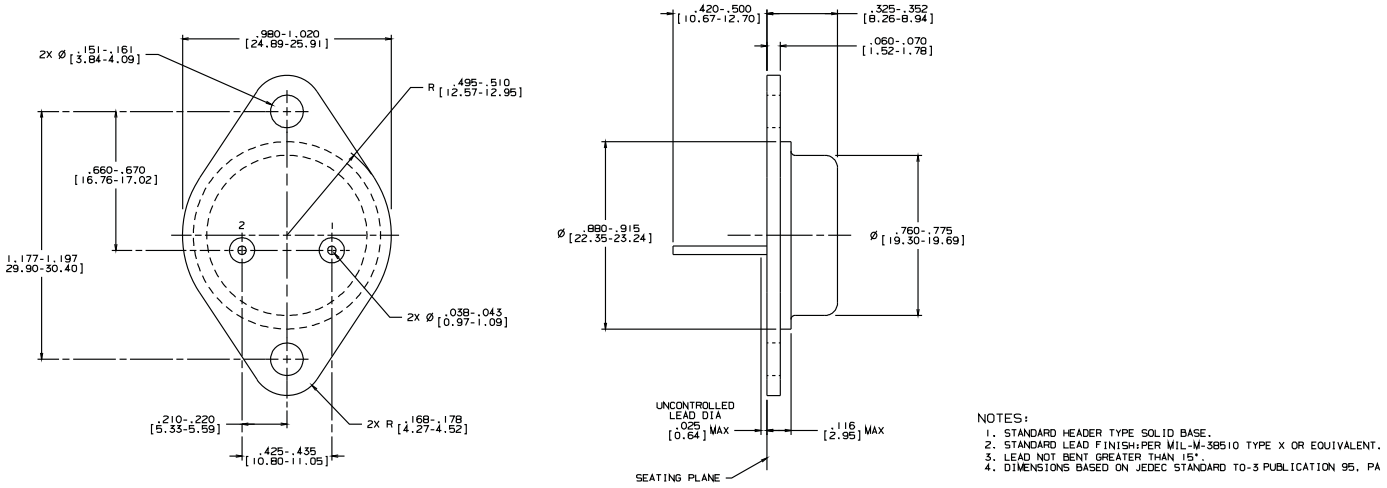
OFF Characteristics (con't)		Symbol	Minimum	Maximum	Unit
Collector-Base Cutoff Current					
V_{CE} = 300 Vdc	2N6249				
V_{CE} = 325 Vdc	2N6250	I_{CBO}	- - -	1.0	mAdc
V_{CE} = 450 Vdc	2N6251				
ON Characteristics (2)					
Forward Current Transfer Ratio					
I_C = 10 Adc, V_{CE} = 3.0 Vdc	2N6249		10	50	
	2N6250	H_{FE}	8	50	
	2N6251		6	50	
Collector - Emitter Sustaining Voltage					
I_C = 10 Adc, I_B = 1.0 Adc	2N6249				
I_C = 10 Adc, I_B = 1.25 Adc	2N6250	$V_{CE(sat)}$	- - -	1.5	Vdc
I_C = 10 Adc, I_B = 1.67 Adc	2N6251				
Base-Emitter Saturation Voltage					
I_C = 10 Adc, I_B = 1.0 Adc	2N6249				
I_C = 10 Adc, I_B = 1.25 Adc	2N6250	$V_{BE(sat)}$	- - -	2.25	Vdc
I_C = 10 Adc, I_B = 1.67 Adc	2N6251				
DYNAMIC Characteristic					
Small-Signal Short-Circuit Forward Current Transfer Ratio					
I_C = 1.0 Adc, V_{CE}= 10 Vdc, f = 1 MHz		$\lvert h_{fe} \rvert$	2.5	15	
Output Capacitance					
V_{CB} = 10 Vdc, I_E = 0, 100 kHz $\leq$ f $\leq$ 1.0 MHz		C_{obo}	- - -	500	pF
Switching Characteristic					
Turn-On Time					
V_{CC} =200 Vdc, I_C = 1.0 Adc,					
I_{B1} = 1.0 Adc	2N6249				
I_{B1} = 1.25Adc	2N6250	t_{on}	- - -	2.0	µs
I_{B1} = 1.67 Adc	2N6251				
Tum-Off Time					
V_{CC} =200 Vdc, I_C = 1.0 Adc,					
I_{B1} = 1.0 Adc	2N6249				
I_{B1} = 1.25Adc	2N6250	t_{off}	- - -	4.5	µs
I_{B1} = 1.67 Adc	2N6251				

SAFE OPERATING AREA

DC Tests:	T_C = +25 °C, 1 Cycle, t = 1.0 s (See Figure 12 of MIL-PRF-19500/371)
Test 1:	V_{CE} = 17.5 Vdc, I_C = 10 Adc
Test 2:	V_{CE} = 30 Vdc, I_C = 5.8 Adc
TEST 3:	V_{CE} = 100 Vdc, I_C = 0.3 Adc
TEST 4:	V_{CE} = 200 Vdc, I_C = 0.13 Adc (For 2N6249 only)
TEST 5:	V_{CE} = 275 Vdc, I_C = 0.09 Adc (For 2N6250 only)
TEST 6:	V_{CE} = 350 Vdc, I_C = 0.09 Adc (For 2N6251 only)

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

Outline Drawing



NOTES:
1. STANDARD HEADER TYPE SOLID BASE.
2. STANDARD LEAD FINISH:PER MIL-M-38510 TYPE X OR EQUIVALENT.
3. LEAD NOT BENT GREATER THAN 15°.
4. DIMENSIONS BASED ON JEDEC STANDARD TO-3 PUBLICATION 95, PA

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AEROFLEX
A passion for performance.

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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