NEW

NPN Darlington Power Silicon Transistor
2N6300 & 2N6301

AEROFLEX
A passion for performance.

Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/539
- TO-66 (TO-213AA) Package

Maximum Ratings

Ratings	Symbol	2N6300	2N6301	Units
Collector - Emitter Voltage	V_{CEO}	60	80	Vdc
Collector - Base Voltage	V_{CBO}	60	80	Vdc
Emitter - Base Voltage	V_{EBO}	5.0		Vdc
Base Current	I_B	120		mAdc
Collector Current	I_C	8.0		Adc
Total Power Dissipation @ T_C = +0 °C @ T_C = +100 °C	P_T	75 37		W W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-55 to +200		°C

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.66	°C/W

Electrical Characteristics (T_C = 25°C unless otherwise noted)

OFF Characteristics		Symbol	Mimimum	Maximum	Units
Collector - Emitter Breakdown Voltage I_C = 100 mAdc	2N6300 2N6301	$V_{(BR)CEO}$	60 80	- - -	Vdc
Collector - Emitter Cutoff Current V_{CE} = 30 Vdc V_{CE} = 40 Vdc	2N6300 2N6301	I_{CEO}	- - -	0.5 0.5	mAdc
Collector - Emitter Cutoff Current V_{CE} = 60 Vdc, V_{BE} = -1.5 Vdc V_{CE} = 80 Vdc, V_{BE} = -1.5 Vdc	2N6300 2N6301	I_{CEX}	- - -	10 10	µAdc
Emitter - Base Cutoff Current V_{EB} = 5.0 Vdc		I_{EBO}	- - -	5.0	mAdc

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METELICS

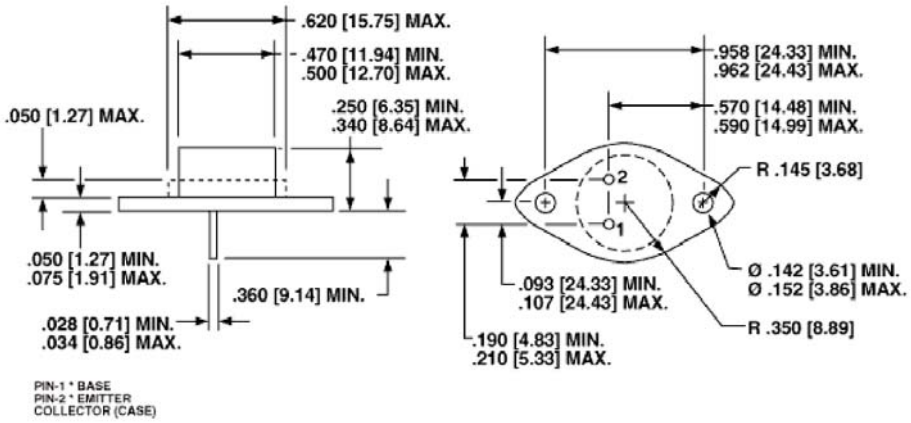
Revision Date: 10/12/2011
New Product

Electrical Characteristics -con't

ON Characteristics (2)	Symbol	Minimum	Maximum	Unit
Forward Current Transfer Ratio I_C = 1.0 Adc, V_{CE} = 3.0 Vdc I_C = 4.0 Adc, V_{CE} = 3.0 Vdc I_C = 8.0 Adc, V_{CE} = 3.0 Vdc	H_{FE}	 500 750 100	 18,000	
Collector - Emitter Saturation Voltage I_C = 4.0 Adc, I_B = 16 mAdc I_C = 8.0 Adc, I_B = 80 mAdc	$V_{CE(sat)}$	 - - - - - -	 2.0 3.0	Vdc
Base - Emitter Saturation Voltage I_C = 8.0 Adc, I_B = 80 mVdc	$V_{BE(sat)}$	- - -	4.0	Vdc
Base-Emitter Voltage I_C = 4.0 Adc, V_{CE} = 3.0 Vdc	$V_{BE(on)}$	- - -	2.8	Vdc
DYNAMIC Characteristics				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 3.0 Adc, V_{CE} = 3.0 Vdc, f = 1.0 MHz	$\lvert h_{fe} \rvert$	25	350	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 3.0 Adc, V_{CE} = 3.0 Vdc, f= 1.0 kHz	h_{fe}	300	- - -	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz $\leq$ f $\leq$ 1.0 MHz	C_{obo}	- - -	200	pF
Switching Characteristics				
Tum-on Time V_{CC} = 30 Vdc, I_C = 4.0 Adc, I_{B1} = 16 mAdc	τ_{on}	- - -	2.0	µs
Tum-Off Time V_{CC} = 30 Vdc, I_C = 4.0 Adc, I_{B1} = 16 mAdc	τ_{off}	- - -	8.0	µs
SAFE OPERATING AREA				
DC Tests:	T_C = +25 °C, 1 Cycle, t = 1.0 s			
Test 1:	V_{CE} = 8.0 Vdc, I_C = 8.0 Adc			
Test 2:	V_{CE} = 20 Vdc, I_C = 2.0 Adc			
Test 3:	V_{CE} = 60 Vdc, I_C = 100 mAdc	2N6300		
	V_{CE} = 80 Vdc, I_C = 100 mAdc	2N6301		

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

Outline Drawing



NOTE: Dimensions in Inches [mm]

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Revision Date: 10/12/2011

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