2N6283 & 2N6284

NPN Darlington Power Silicon Transistor

Rev. V1

Features

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

Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	I_C = 100 mAdc 2N6283 2N6284	$V_{(BR)CEO}$	Vdc	80 100	—
Collector - Emitter Cutoff Current	V_{CE} = 40 Vdc, 2N6283 V_{CE} = 50 Vdc, 2N6284	I_{CEO}	mAdc	—	1.0
Collector - Emitter Cutoff Current	V_{CE} = 80 Vdc, V_{BE} = -1.5 Vdc, 2N6283 V_{CE} = 100 Vdc, V_{BE} = -1.5 Vdc, 2N6284	I_{CEX}	mAdc	—	0.01
Collector - Base Cutoff Current	V_{EB} = 7 Vdc	I_{EBO}	mAdc	—	2.5
On Characteristics[1]					
Forward Current Transfer Ratio	I_C = 1 Adc, V_{CE} = 3 Vdc I_C = 10 Adc, V_{CE} = 3 Vdc I_C = 20 Adc, V_{CE} = 3 Vdc	H_{FE}	-	1500 1250 500	18000
Collector - Emitter Saturation Voltage	I_C = 20 Adc, I_B = 200 mAdc I_C = 10 Adc, I_B = 40 mAdc	$V_{CE(SAT)}$	Vdc	—	3.0 2.0
Base - Emitter Saturation Voltage	I_C = 20 Adc, I_B = 200 mAdc	$V_{BE(SAT)}$	Vdc	—	4.0
Base - Emitter Voltage	I_C = 10 Adc, I_B = 3 Vdc	V_{BE}	Vdc	—	2.8
Dynamic Characteristics					
Magnitude of Common Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 10 Adc, V_{CE} = 3 Vdc, f = 1 kHz	$\lvert H_{FE} \rvert$	-	8	80
Small-Signal Short-Circuit Forward Current Transfer Ratio	I_C = 10 Adc, V_{CE} = 3 Vdc, f = 1 kHz	H_{FE}	-	700	—
Output Capacitance	V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1 MHz	C_{OBO}	pF	—	350
Switching Characteristics					
Turn-On Time	V_{CC} = 30 Vdc; I_C = 10 Adc; I_B1 = 40 mAdc	T_{ON}	µs	—	2
Turn-Off Time	V_{CC} = 30 Vdc; I_C = 10 Adc; I_B1 = I_B2 = 40 mAdc	T_{OFF}	µs	—	10
Safe Operating Area					
DC Tests: Test 1: Test 2: Test 3:	T_C = +25 °C, I Cycle, t = 1.0 s V_{CE} = 8.75 Vdc, I_C = 20 Adc V_{CE} = 30 Vdc, I_C = 5.8 Adc V_{CE} = 80 Vdc, I_C = 100 mAdc V_{CE} = 100 Vdc, I_C = 100 mAdc				

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

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Absolute Maximum Ratings

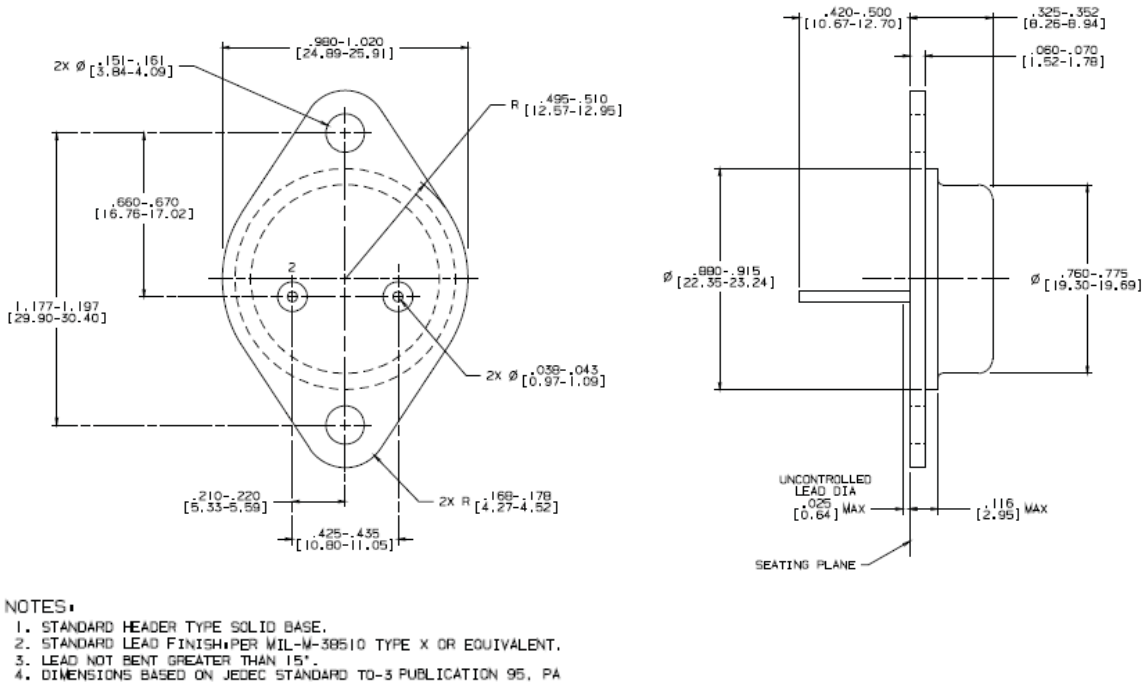
Ratings	Symbol	2N6283	2N6284	Units
Collector - Emitter Voltage	V_{CEO}	80	100	Vdc
Collector - Base Voltage	V_{CBO}	80	100	Vdc
Emitter - Base Voltage	V_{EBO}	7		Vdc
Collector Current	I_C	20		Adc
Base Current	I_B	0.5		Adc
Total Power Dissipation @ T_A = +25°C[2] @ T_A = +100°C	P_T	175 87.5		W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65 to +200		°C

2. Derate linearly @ 1 mW / °C for T_A >+25°C.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.857°C/W

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