

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	$I_C = 100 \text{ mAdc}$ 2N6283 2N6284	$V_{(BR)CEO}$	Vdc	80 100	—
Collector - Emitter Cutoff Current	$V_{CE} = 40 \text{ Vdc}$, 2N6283 $V_{CE} = 50 \text{ Vdc}$, 2N6284	I_{CEO}	mAdc	—	1.0
Collector - Emitter Cutoff Current	$V_{CE} = 80 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$, 2N6283 $V_{CE} = 100 \text{ Vdc}$, $V_{BE} = -1.5 \text{ Vdc}$, 2N6284	I_{CEX}	mAdc	—	0.01
Collector - Base Cutoff Current	$V_{EB} = 7 \text{ Vdc}$	I_{EBO}	mAdc	—	2.5
On Characteristics¹					
Forward Current Transfer Ratio	$I_C = 1 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$ $I_C = 10 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$ $I_C = 20 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$	H_{FE}	-	1500 1250 500	18000
Collector - Emitter Saturation Voltage	$I_C = 20 \text{ Adc}$, $I_B = 200 \text{ mAdc}$ $I_C = 10 \text{ Adc}$, $I_B = 40 \text{ mAdc}$	$V_{CE(SAT)}$	Vdc	—	3.0 2.0
Base - Emitter Saturation Voltage	$I_C = 20 \text{ Adc}$, $I_B = 200 \text{ mAdc}$	$V_{BE(SAT)}$	Vdc	—	4.0
Base - Emitter Voltage	$I_C = 10 \text{ Adc}$, $I_B = 3 \text{ Vdc}$	V_{BE}	Vdc	—	2.8
Dynamic Characteristics					
Magnitude of Common Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 10 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$, $f = 1 \text{ kHz}$	$ H_{FE} $	-	8	80
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 10 \text{ Adc}$, $V_{CE} = 3 \text{ Vdc}$, $f = 1 \text{ kHz}$	H_{FE}	-	700	—
Output Capacitance	$V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{OBO}	pF	—	350
Switching Characteristics					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}$; $I_C = 10 \text{ Adc}$; $I_{B1} = 40 \text{ mAdc}$	T_{ON}	μs	—	2
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}$; $I_C = 10 \text{ Adc}$; $I_{B1} = I_{B2} = 40 \text{ mAdc}$	T_{OFF}	μs	—	10
Safe Operating Area					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}$, 1 Cycle, $t = 1.0 \text{ s}$				
Test 1:	$V_{CE} = 8.75 \text{ Vdc}$, $I_C = 20 \text{ Adc}$				
Test 2:	$V_{CE} = 30 \text{ Vdc}$, $I_C = 5.8 \text{ Adc}$				
Test 3:	$V_{CE} = 80 \text{ Vdc}$, $I_C = 100 \text{ mAdc}$				
	$V_{CE} = 100 \text{ Vdc}$, $I_C = 100 \text{ mAdc}$				

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

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DC-0013431

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 @ $T_A = +25^\circ\text{C}$ @ $T_A = +100^\circ\text{C}$	P_T	175 87.5		W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65 to +200		$^\circ\text{C}$

2. Derate linearly @ 1 mW / $^\circ\text{C}$ for $T_A > +25^\circ\text{C}$.

Thermal Characteristics

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

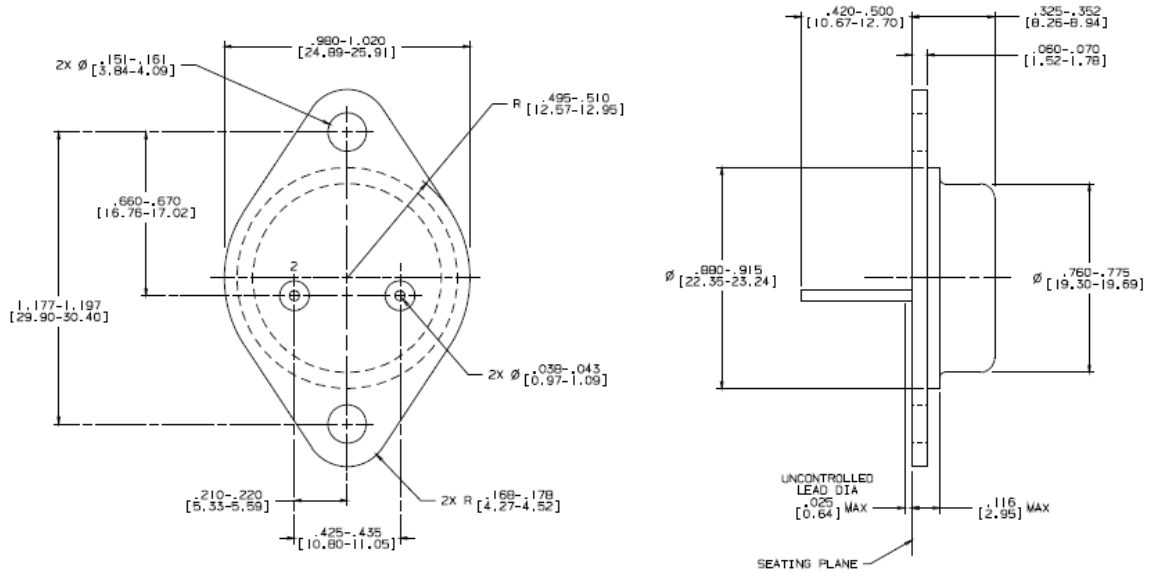
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Outline Drawing



NOTES:

1. STANDARD HEADER TYPE SOLID BASE.
2. STANDARD LEAD FINISH PER MIL-M-39510 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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