

NPN Darlington Power Silicon Transistor

2N6283 & 2N6284



Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/504
- TO-3 (TO-204AA) Package



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}	7.0		Vdc
Base Current	I_B	0.5		Adc
Collector Current	I_C	20		Adc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$ ⁽¹⁾ @ $T_A = +100^\circ\text{C}$	P_T	175		W
		87.5		W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200°C		

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.857	°C/W

1) Derate linearly @ 1.0 mW/°C for $T_A > +25^\circ\text{C}$

Electrical Characteristics

OFF Characteristics		Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	2N6283	$V_{(BR)CEO}$	80	---	Vdc
	2N6284		100		
Collector - Emitter Cutoff Current $V_{CE} = 40 \text{ Vdc}$ $V_{CE} = 50 \text{ Vdc}$	2N6283	I_{CEO}	---	1.0	mAdc
	2N6284			1.0	
Collector - Emitter Cutoff Current $V_{CE} = 80 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = -1.5 \text{ Vdc}$	2N6283	I_{CEX}	---	0.01	mAdc
	2N6284			0.01	
Emitter - Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$		I_{EBO}	---	2.5	mAdc



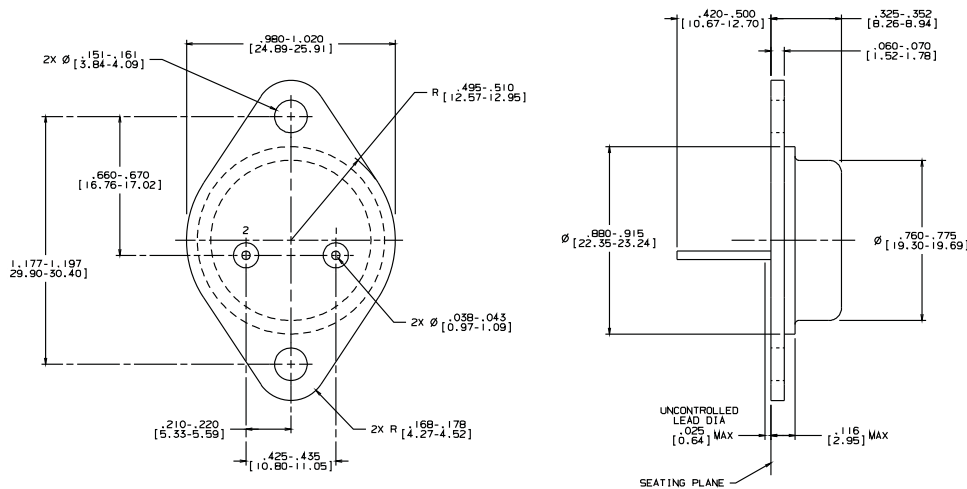
Electrical Characteristics -con't

ON Characteristics ⁽²⁾		Symbol	Minimum	Maximum	Unit
Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 10.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 20.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$		H_{FE}	1,500 1,250 500	18,000	
Collector - Emitter Saturation Voltage $I_C = 20.0 \text{ Adc}, I_B = 200 \text{ mAdc}$ $I_C = 10.0 \text{ Adc}, I_B = 40 \text{ mAdc}$		$V_{CE(sat)}$	- - -	3.0 2.0	Vdc
Base - Emitter Saturation Voltage $I_C = 20.0 \text{ Adc}, I_B = 200 \text{ mAdc}$		$V_{BE(sat)}$	- - -	4.0	Vdc
Base - Emitter Voltage $I_C = 10.0 \text{ Adc}, I_B = 3.0 \text{ Vdc}$		V_{BE}	- - -	2.8	Vdc
DYNAMIC Characteristic					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 10.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ kHz}$		$ h_{fe} $	8.0	80	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 10.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ kHz}$		h_{fe}	700	- - -	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}	- - -	350	pF
Switching Characteristic					
Turn-On Time $V_{CC} = 30 \text{ Vdc}; I_C = 10.0 \text{ Adc}; I_B = 40 \text{ mAdc}$		t_{on}	- - -	2.0	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}; I_C = 10.0 \text{ Adc}; I_{B1} = I_{B2} = 40 \text{ mAdc}$		t_{off}	- - -	10.0	μs
SAFE OPERATING AREA					
DC Tests: $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ 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: $V_{CE} = 80 \text{ Vdc}, I_C = 100 \text{ mAdc}$ $V_{CE} = 100 \text{ Vdc}, I_C = 100 \text{ mAdc}$					

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

Outline Drawing

2N6283 & 2N6284



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