

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 @ $T_A = +25\text{ }^\circ\text{C}$ (1) @ $T_A = +100\text{ }^\circ\text{C}$	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 $T_A > +25\text{ }^\circ\text{C}$

Electrical Characteristics

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

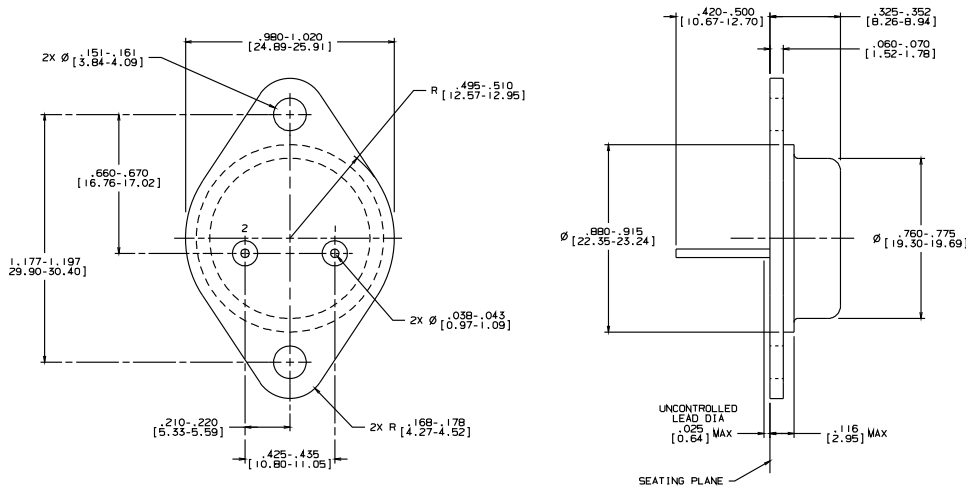


Electrical Characteristics -con't

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:	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$			
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



- NOTES:
1. STANDARD HEADER TYPE SOLID BASE.
 2. STANDARD LEAD FINISH PER MIL-M-58510 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.