



# PNP Darlington Power Silicon Transistor

## 2N6286 & 2N6287



### Features

- Available in JANTX, and JANTXV per MIL-PRF-19500/505
- TO-3 (TO-204AA) Package



### Maximum Ratings

Ratings	Symbol	2N6286	2N6287	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	$P_T$	@ $T_A = +25\text{ }^\circ\text{C}$ <sup>(1)</sup>	175	W
		@ $T_C = +100\text{ }^\circ\text{C}$	87.5	W
Operating & Storage Junction Temperature Range	$T_{Op}, T_{stg}$	-65 to +175		$^\circ\text{C}$

1) Derate linearly @ 1.17 mW /  $^\circ\text{C}$  for  $T_C > +25\text{ }^\circ\text{C}$

### Thermal Characteristics

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

### Electrical Characteristics

OFF Characteristics	Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = -100\text{ mA}$	$V_{(BR)CEO}$	2N6286 2N6287	-80 -100	---
				Vdc
Collector - Emitter Cutoff Current $V_{CE} = -40\text{ Vdc}$ $V_{CE} = -50\text{ Vdc}$	$I_{CEO}$	2N6286 2N6287	---	-1.0 -1.0
				mAdc
Collector - Emitter Cutoff Current $V_{CE} = -80\text{ Vdc}, V_{BE} = 1.5\text{ Vdc}$ $V_{CE} = -100\text{ Vdc}, V_{BE} = 1.5\text{ Vdc}$	$I_{CEX}$	2N6286 2N6287	---	-0.5 -0.5
				mAdc
Emitter - Base Cutoff Current $V_{EB} = -7.0\text{ Vdc}$	$I_{EBO}$		---	-2.0
				mAdc

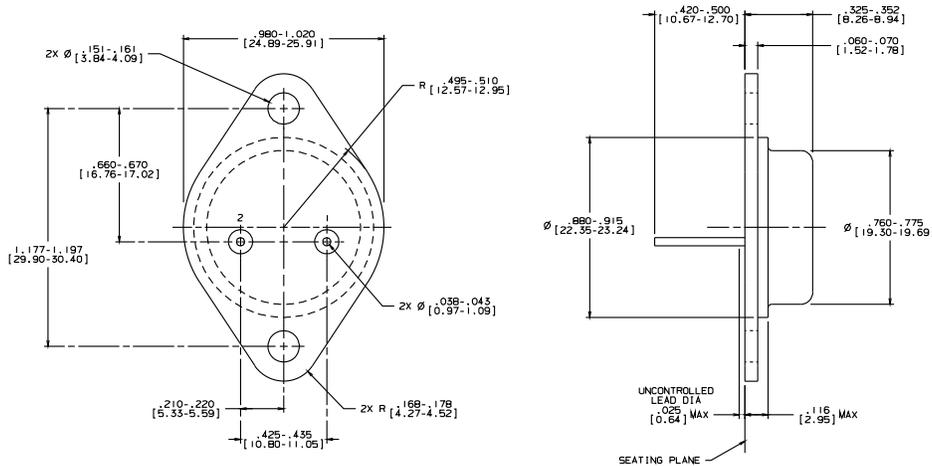


**Electrical Characteristics -con't**

<b>ON Characteristics</b> <sup>(2)</sup>	Symbol	Minimum	Maximum	Units
Forward Current Transfer Ratio $I_C = -1.0 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$ $I_C = -6.0 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$ $I_C = -12 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$	$H_{FE}$	1,000 1,000 150	18,000	
Collector - Emitter Saturation Voltage $I_C = -20 \text{ Adc}, I_B = -200 \text{ mAdc}$ $I_C = -10.0 \text{ Adc}, I_B = -40 \text{ mAdc}$	$V_{CE(sat)}$	--- ---	-3.0 -2.0	Vdc
Base - Emitter Saturation Voltage $I_C = -20 \text{ Adc}, I_B = -200 \text{ mAdc}$	$V_{BE(sat)}$	---	-4.0	Vdc
Base - Emitter Voltage $I_C = -10.0 \text{ Adc}, I_B = -3.0 \text{ Adc}$	$V_{BE(sat)}$	---	-2.8	Vdc
<b>DYNAMIC Characteristics</b>				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = -10 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}, f = 1.0 \text{ MHz}$	$ h_{fe} $	8.0	80	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = -10 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$	$h_{fe}$	300	---	
Output Capacitance $V_{CB} = -10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$	---	400	pF
<b>Switching Characteristic</b>				
Turn-On Time $V_{CC} = -30 \text{ Vdc}, I_C = -10 \text{ Adc}, I_B = -40 \text{ mAdc}$	$t_{on}$	---	2.0	$\mu\text{s}$
Turn-Off Time $V_{CC} = -30 \text{ Vdc}, I_C = -10 \text{ Adc}, I_B = -40 \text{ mAdc}$	$t_{off}$	---	10	$\mu\text{s}$
<b>SAFE OPERATING AREA</b>				
<b>DC Tests:</b> $T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$ <b>Test 1:</b> $V_{CE} = -8.75 \text{ Vdc}, I_C = -20 \text{ Adc}$ All Types <b>Test 2:</b> $V_{CE} = -30.0 \text{ Vdc}, I_C = -5.8 \text{ Adc}$ All Types <b>Test 3:</b> $V_{CE} = -80.0 \text{ Vdc}, I_C = -100 \text{ mAdc}$ 2N6286 $V_{CE} = -100.0 \text{ Vdc}, I_C = -100 \text{ mAdc}$ 2N6287				

(2) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0 \%$ .

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

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