

## PNP DARLINGTON POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/505

### Devices

2N6286

2N6287

### Qualified Level

JANTX  
JANTXV

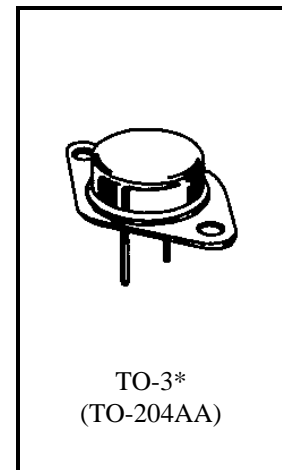
### MAXIMUM RATINGS

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

### THERMAL CHARACTERISTICS

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

1) Derate linearly @ 1.17 W/ $^{\circ}C$  above  $T_C > +25^{\circ}C$



\*See appendix A for package outline

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^{\circ}C$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = -100$ mAdc	2N6286 2N6287	$V_{(BR)CEO}$	-80 -100	Vdc
Collector-Emitter Cutoff Current $V_{CE} = -40$ Vdc $V_{CE} = -50$ Vdc	2N6286 2N6287	$I_{CEO}$	-1.0 -1.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = -80$ Vdc, $V_{BE} = 1.5$ Vdc $V_{CE} = -100$ Vdc, $V_{BE} = 1.5$ Vdc	2N6286 2N6287	$I_{CEX}$	-0.5 -0.5	mAdc
Emitter-Base Cutoff Current $V_{EB} = -7.0$ Vdc		$I_{EBO}$	-2.5	Adc

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS <sup>(2)</sup></b>				
Forward-Current Transfer Ratio $I_C = -1.0 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$ $I_C = -10 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$ $I_C = -20 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$	$h_{FE}$	1,500 1,250 300	18,000	
Collector-Emitter Saturation Voltage $I_C = -20 \text{ Adc}, I_B = -200 \text{ mAdc}$ $I_C = -10 \text{ Adc}, I_B = -40 \text{ mAdc}$	$V_{CE(sat)}$		-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 $I_C = -10 \text{ Adc}, V_{CE} = -3.0 \text{ Vdc}$	$V_{BE(on)}$		-2.8	Vdc

**DYNAMIC CHARACTERISTICS**

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

**SWITCHING CHARACTERISTICS**

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 $V_{CC} = -30 \text{ Vdc}, I_C = -10 \text{ Adc}, I_{B1} = I_{B2} = -40 \text{ mAdc}$	$t_{off}$		10	$\mu\text{s}$

**SAFE OPERATING AREA**

<b>DC Tests</b> $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$	
<b>Test 1</b> $V_{CE} = -8.75 \text{ Vdc}, I_C = -20 \text{ Adc}$	All Types
<b>Test 2</b> $V_{CE} = -30 \text{ Vdc}, I_C = -5.8 \text{ Adc}$	All Types
<b>Test 3</b> $V_{CE} = -80 \text{ Vdc}, I_C = -100 \text{ mAdc}$	2N6286
$V_{CE} = -100 \text{ Vdc}, I_C = -100 \text{ mAdc}$	2N6287

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