

## PNP Darlington Power Silicon Transistor

Rev. V1

### Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/540
- TO-66 (TO-213AA) Package



### Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
<b>Off Characteristics</b>					
Collector - Emitter Breakdown Voltage	$I_C = 100 \text{ mAdc}$ , 2N6298 $I_C = 100 \text{ mAdc}$ , 2N6299	$V_{(BR)CEO}$	Vdc	60 80	—
Collector - Emitter Cutoff Current	$V_{CE} = 30 \text{ Vdc}$ , 2N6298 $V_{CE} = 40 \text{ Vdc}$ , 2N6299	$I_{CEO}$	mAdc	—	0.5
Collector - Emitter Cutoff Current	$V_{CE} = 60 \text{ Vdc}$ , $V_{BE} = 1.5 \text{ Vdc}$ , 2N6298 $V_{CE} = 80 \text{ Vdc}$ , $V_{BE} = 1.5 \text{ Vdc}$ , 2N6299	$I_{CEX}$	$\mu\text{Adc}$	—	10
Emitter - Base Cutoff Current	$V_{EB} = 5 \text{ Vdc}$	$I_{EBO}$	mAdc	—	2
<b>On Characteristics<sup>1</sup></b>					
Forward Current Transfer Ratio	$I_C = 1 \text{ Adc}$ , $V_{CE} = 3 \text{ Vdc}$ $I_C = 4 \text{ Adc}$ , $V_{CE} = 3 \text{ Vdc}$ $I_C = 8 \text{ Adc}$ , $V_{CE} = 3 \text{ Vdc}$	$H_{FE}$	-	500 750 100	18,000
Collector - Emitter Saturation Voltage	$I_C = 4 \text{ Adc}$ , $I_B = 16 \text{ Adc}$ $I_C = 8 \text{ Adc}$ , $I_B = 80 \text{ Adc}$	$V_{CE(SAT)}$	Vdc	—	2.0
Base - Emitter Saturation Voltage	$I_C = 8 \text{ Adc}$ , $I_B = 80 \text{ Adc}$	$V_{CE(SAT)}$	Vdc	—	4.0
Base - Emitter Voltage	$I_C = 4 \text{ Adc}$ , $V_{CE} = 10 \text{ Vdc}$	$V_{BE(ON)}$	Vdc	—	2.8
<b>Dynamic Characteristics</b>					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 3 \text{ Adc}$ , $V_{CE} = 3 \text{ Vdc}$ , $f = 1.0 \text{ kHz}$	$ H_{FE} $	-	25	350
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 3 \text{ Adc}$ , $V_{CE} = 3 \text{ Vdc}$ , $f = 1.0 \text{ kHz}$	$ H_{FE} $	-	300	—
Output Capacitance	$V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	$C_{OBO}$	pF	—	200
<b>Switching Characteristics</b>					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}$ ; $I_C = 4.0 \text{ Adc}$ ; $I_{B1} = 16 \text{ mAdc}$	$T_{ON}$	$\mu\text{s}$	—	2.0
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}$ ; $I_C = 4.0 \text{ Adc}$ ; $I_{B1} = 16 \text{ mAdc}$	$T_{OFF}$	$\mu\text{s}$	—	8.0
<b>Safe Operating Area</b>					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}$ , 1 Cycle, $t = 1.0 \text{ s}$				
Test 1:	$V_{CE} = 8.0 \text{ Vdc}$ , $I_C = 8.0 \text{ Adc}$				
Test 2:	$V_{CE} = 20 \text{ Vdc}$ , $I_C = 2.0 \text{ Adc}$				
Test 3:	$V_{CE} = 60 \text{ Vdc}$ , $I_C = 100 \text{ Adc}$ , 2N6298				
	$V_{CE} = 80 \text{ Vdc}$ , $I_C = 100 \text{ Adc}$ , 2N6299				

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

### Absolute Maximum Ratings

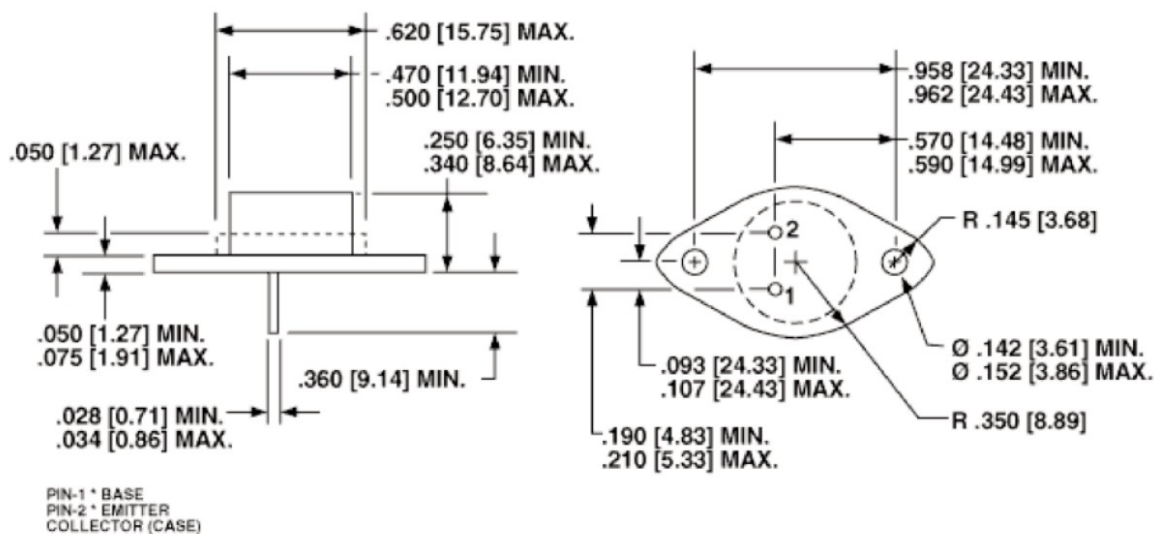
Ratings	Symbol	Value
Collector - Emitter Voltage 2N6298 2N6299	$V_{CEO}$	60 Vdc 80 Vdc
Collector - Base Voltage 2N6298 2N6299	$V_{CBO}$	60 Vdc 80 Vdc
Emitter - Base Voltage	$V_{EBO}$	5 Vdc
Base Current	$I_B$	120 mAdc
Collector Current	$I_C$	8 Adc
Total Power Dissipation @ $T_C = +25^\circ\text{C}$ @ $T_C = +100^\circ\text{C}$	$P_T$	64 W 32 W
Operating & Storage Temperature Range	$T_{OP}, T_{STG}$	$-65^\circ\text{C}$ to $+175^\circ\text{C}$

1. Derate linearly @ 0.428 mW / °C for  $T_C > +25^\circ\text{C}$ .

### Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.33°C/W

### Outline Drawing



NOTE: Dimensions in Inches [mm]

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