

PNP DARLINGTON POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/540

Devices

2N6298

2N6299

Qualified Level

JAN
JANTX
JANTXV

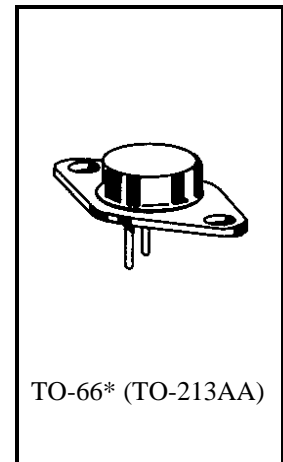
MAXIMUM RATINGS

Ratings	Symbol	2N6298	2N6299	Units
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Base Current	I_B	120		mAdc
Collector Current	I_C	8.0		Adc
Total Power Dissipation @ $T_C = 0^{\circ}\text{C}$ ⁽¹⁾	P_T	75		W
@ $T_C = 100^{\circ}\text{C}$		32		W
Operating & Storage Junction Temperature Range	T_{OP}, T_{STG}	-65 to +175		$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.33	$^{\circ}\text{C}/\text{W}$

1) Derate linearly 0.428 W/ $^{\circ}\text{C}$ above $T_C > 0^{\circ}\text{C}$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	2N6298 2N6299	$V_{(BR)CEO}$	60 80	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 30 \text{ Vdc}$ $V_{CE} = 40 \text{ Vdc}$	2N6298 2N6299	I_{CEO}	0.5 0.5	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ $V_{CE} = 80 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N6298 2N6299	I_{CEX}	0.5 0.5	mAdc
Emitter-Base Cutoff Current $V_{EB} = 5.0 \text{ Vdc}$		I_{EBO}	2.0	mAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 8.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$	h_{FE}	500 750 100	18,000	
Collector-Emitter Saturation Voltage $I_C = 4.0 \text{ Adc}, I_B = 16 \text{ mAdc}$ $I_C = 8.0 \text{ Adc}, I_B = 80 \text{ mAdc}$	$V_{CE(sat)}$		2.0 3.0	Vdc
Base-Emitter Saturation Voltage $I_C = 8.0 \text{ Adc}, I_B = 80 \text{ mAdc}$	$V_{BE(sat)}$		4.0	Vdc
Base-Emitter Voltage $I_C = 4.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$	$V_{BE(on)}$		2.8	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 3.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ MHz}$	$ h_{fe} $	25	350	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 3.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ kHz}$	h_{fe}	300		
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		200	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 16 \text{ mAdc}$	t_{on}		2.0	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 16 \text{ mAdc}$	t_{off}		8.0	μs

SAFE OPERATING AREA

DC Tests $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$	
Test 1 $V_{CE} = 8.0 \text{ Vdc}, I_C = 8.0 \text{ Adc}$	
Test 2 $V_{CE} = 20 \text{ Vdc}, I_C = 2.0 \text{ Adc}$	
Test 3 $V_{CE} = 60 \text{ Vdc}, I_C = 100 \text{ mAdc}$ 2N6298 $V_{CE} = 80 \text{ Vdc}, I_C = 100 \text{ mAdc}$ 2N6299	

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