

PNP DARLINGTON HIGH POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/623

Devices

2N7371

Qualified Level

JAN, JANTX
JANTXV

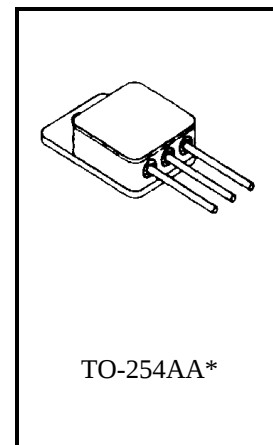
MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	100	Vdc
Collector-Base Voltage	V_{CBO}	100	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Base Current	I_B	0.2	Adc
Collector Current	I_C	12	Adc
Total Power Dissipation @ $T_C = +25^{\circ}\text{C}$ ⁽¹⁾	P_T	100	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^{\circ}\text{C/W}$

1) Derate linearly 0.667 W/ $^{\circ}\text{C}$ above $T_C > +25^{\circ}\text{C}$



*See Appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
-----------------	--------	------	------	------

OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	$V_{CEO(sus)}$	100		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 50 \text{ Vdc}$	I_{CEO}		1.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 100 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	I_{CEX}		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 $I_C = 6.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 12 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$	h_{FE}	1,000 150	18,000	
Collector-Emitter Saturation Voltage $I_C = 12 \text{ Adc}, I_B = 120 \text{ mAdc}$	$V_{CE(sat)}$		3.0	Vdc
Base-Emitter Saturation Voltage $I_C = 12 \text{ Adc}, I_B = 120 \text{ mAdc}$	$V_{BE(sat)}$		4.0	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 5.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ MHz}$	$ h_{fe} $	10	250	
--	------------	----	-----	--

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 30 \text{ Vdc}, I_C = 12 \text{ Adc}, I_{B1} = 120 \text{ mAdc}$	t_{on}		2.0	μs
Turn-Off Time $V_{CC} = 30 \text{ Vdc}, I_C = 12 \text{ Adc}, I_{B1} = I_{B2} = 120 \text{ mAdc}$	t_{off}		10	μs

SAFE OPERATING AREA

DC Tests $T_C = +25^\circ\text{C}, 1 \text{ Cycle}, t \geq 1.0 \text{ s}$ Test 1 $V_{CE} = 8.3 \text{ Vdc}, I_C = 12 \text{ Adc}$ Test 2 $V_{CE} = 30 \text{ Vdc}, I_C = 3.3 \text{ Adc}$ Test 3 $V_{CE} = 90 \text{ Vdc}, I_C = 150 \text{ mAdc}$

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