

NPN DARLINGTON POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/504

Devices

2N6283

2N6284

Qualified Level

JAN
JANTX
JANTXV

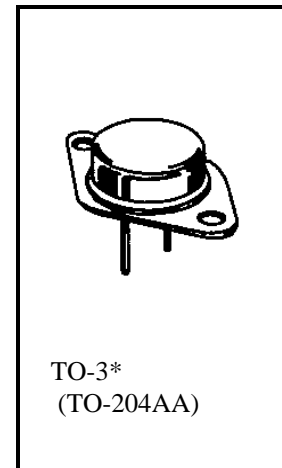
MAXIMUM RATINGS

Ratings	Symbol	2N6583	2N6284	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 ⁽¹⁾	P_T	@ $T_C = +25^{\circ}C$	175	W
		@ $T_C = +100^{\circ}C$	87.5	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}C$

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 $I_C = 100 \text{ mAdc}$	2N6283 2N6284	$V_{(BR)CEO}$	80 100	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 40 \text{ Vdc}$ $V_{CE} = 50 \text{ Vdc}$	2N6283 2N6284	I_{CEO}	1.0 1.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 80 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ $V_{CE} = 100 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N6283 2N6284	I_{CEX}	5.0 5.0	mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$		I_{EBO}	2.5	mAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio I _C = 1.0 Adc, V _{CE} = 3.0 Vdc I _C = 10 Adc, V _{CE} = 3.0 Vdc I _C = 20 Adc, V _{CE} = 3.0 Vdc	h _{FE}	1,500 1,250 500	18,000	
Collector-Emitter Saturation Voltage I _C = 20 Adc, I _B = 200 mAdc I _C = 10 Adc, I _B = 40 mAdc	V _{CE(sat)}		3.0 2.0	Vdc
Base-Emitter Saturation Voltage I _C = 20 Adc, I _B = 200 mAdc	V _{BE(sat)}		4.0	Vdc
Base-Emitter Voltage I _C = 10 Adc, V _{CE} = 3.0Vdc	V _{BE}		2.8	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 10 Adc, V _{CE} = 3.0 Vdc, f = 1.0 MHz	h _{fe}	8.0	80	
Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 10 Adc, V _{CE} = 3.0 Vdc, f = 1.0 kHz	h _{fe}	700		
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		300	pF

SWITCHING CHARACTERISTICS

Turn-On Time V _{CC} = 30 Vdc; I _C = 10 Adc; I _B = 40 mAdc	t _{on}		2.0	μs
Turn-Off Time V _{CC} = 30 Vdc; I _C = 10 Adc; I _{B1} = I _{B2} = 40 mAdc	t _{off}		10	μs

SAFE OPERATING AREA

DC Tests T _C = +25°C, 1 Cycle, t = 1.0 s				
Test 1 V _{CE} = 8.75 Vdc, I _C = 20 Adc				
Test 2 V _{CE} = 30 Vdc, I _C = 5.8 Adc				
Test 3 V _{CE} = 80 Vdc, I _C = 100 mAdc 2N6283 V _{CE} = 100 Vdc, I _C = 100 mAdc 2N6284				

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