

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/509

Devices

2N6338

2N6341

Qualified Level

JANTX
JANTXV

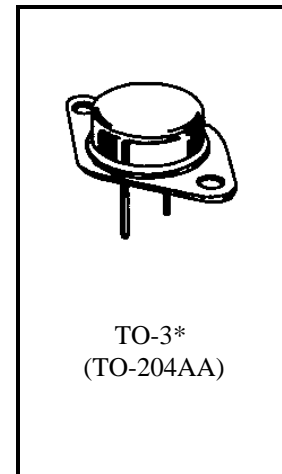
MAXIMUM RATINGS

Ratings	Symbol	2N6338	2N6341	Unit
Collector-Emitter Voltage	V_{CEO}	100	150	Vdc
Collector-Base Voltage	V_{CBO}	120	180	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Base Current	I_B	10		Adc
Collector Current	I_C	25		Adc
Total Power Dissipation ⁽¹⁾	@ $T_A = +25^{\circ}\text{C}$	200		W
	@ $T_C = +100^{\circ}\text{C}$	112		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	$R_{\theta JC}$	0.875	$^{\circ}\text{C}/\text{W}$

1) Derate linearly 1.14 W/ $^{\circ}\text{C}$ for $T_C = +25^{\circ}\text{C}$ and $T_C = +200^{\circ}\text{C}$



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 50 \text{ mAdc}$	2N6338 2N6341	$V_{(BR)CEO}$	100 150	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 50 \text{ Vdc}$ $V_{CE} = 75 \text{ Vdc}$	2N6338 2N6341	I_{CEO}	50	μAdc
Collector-Emitter Cutoff Current $V_{CE} = 100 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$ $V_{CE} = 150 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N6338 2N6341	I_{CEX}	10 10	μAdc
Emitter-Base Cutoff Current $V_{EB} = 6.0 \text{ Vdc}$		I_{EBO}	100	μAdc
Collector-Base Cutoff Current $V_{CB} = 120 \text{ Vdc}$ $V_{CB} = 180 \text{ Vdc}$	2N6338 2N6341	I_{CEO}	10 10	μAdc

2N6338, 2N6341 JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
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ON CHARACTERISTICS ⁽²⁾

Forward-Current Transfer Ratio I _C = 0.5 Adc, V _{CE} = 2.0 Vdc I _C = 10 Adc, V _{CE} = 2.0 Vdc I _C = 25 Adc, V _{CE} = 2.0 Vdc	h _{FE}	40 30 12	120	
Collector-Emitter Saturation Voltage I _C = 10 Adc, I _B = 1.0 Adc I _C = 25 Adc, I _B = 2.5 Adc	V _{CE(sat)}		1.0 1.8	Vdc
Base-Emitter Saturation Voltage I _C = 10 Adc, I _B = 1.0 Adc	V _{BE(sat)}		1.8	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 1.0 Adc, V _{CE} = 10 Vdc, f = 10 MHz	h _{fe}	4.0	12	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 0.1 MHz ≤ f ≤ 1.0 MHz	C _{obo}		450	pF

SWITCHING CHARACTERISTICS

Turn-On Time V _{CC} = 80 Vdc; I _C = 10 Adc; I _B = 1.0 Adc	t _{on}		0.5	μs
Turn-Off Time V _{CC} = 80 Vdc; I _C = 10 Adc; I _{B1} = I _{B2} = 1.0 Adc	t _{off}		1.25	μs
Storage Time V _{CC} = 80 Vdc; I _C = 10 Adc; I _{B1} = I _{B2} = 1.0 Adc	t _s		1.0	μs

SAFE OPERATING AREA

DC Tests				
T _C = +25°C, 1 Cycle, t = 1.0 s				
Test 1				
V _{CE} = 8.0 Vdc, I _C = 25 Adc				All Types
Test 2				
V _{CE} = 14 Vdc, I _C = 14 Adc				All Types
Test 3				
V _{CE} = 100 Vdc, I _C = 100 mAdc				2N6338
V _{CE} = 150 Vdc, I _C = 66 mAdc				2N6341

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