

## NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/509

### Devices

2N6338

2N6341

### Qualified Level

JANTX  
JANTXV

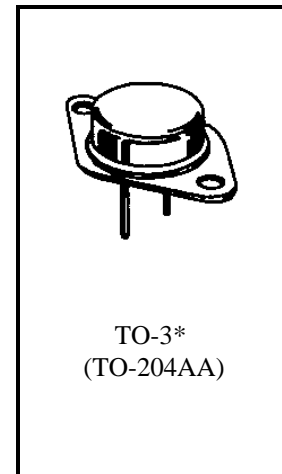
### MAXIMUM RATINGS

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 <sup>(1)</sup>	$P_T$	@ $T_A = +25^{\circ}C$	200	W
		@ $T_C = +100^{\circ}C$	112	W
Operating & Storage Junction Temperature Range	$T_{op}, T_{stg}$	-65 to +175		$^{\circ}C$

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.875	$^{\circ}C/W$

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



\*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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### OFF CHARACTERISTICS

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

**2N6338, 2N6341 JAN SERIES**

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
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**ON CHARACTERISTICS <sup>(2)</sup>**

Forward-Current Transfer Ratio I <sub>C</sub> = 0.5 Adc, V <sub>CE</sub> = 2.0 Vdc I <sub>C</sub> = 10 Adc, V <sub>CE</sub> = 2.0 Vdc I <sub>C</sub> = 25 Adc, V <sub>CE</sub> = 2.0 Vdc	h <sub>FE</sub>	40 30 12	120	
Collector-Emitter Saturation Voltage I <sub>C</sub> = 10 Adc, I <sub>B</sub> = 1.0 Adc I <sub>C</sub> = 25 Adc, I <sub>B</sub> = 2.5 Adc	V <sub>CE(sat)</sub>		1.0 1.8	Vdc
Base-Emitter Saturation Voltage I <sub>C</sub> = 10 Adc, I <sub>B</sub> = 1.0 Adc	V <sub>BE(sat)</sub>		1.8	Vdc

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 1.0 Adc, V <sub>CE</sub> = 10 Vdc, f = 10 MHz	h <sub>fe</sub>	4.0	12	
Output Capacitance V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, 0.1 MHz ≤ f ≤ 1.0 MHz	C <sub>obo</sub>		450	pF

**SWITCHING CHARACTERISTICS**

Turn-On Time V <sub>CC</sub> = 80 Vdc; I <sub>C</sub> = 10 Adc; I <sub>B</sub> = 1.0 Adc	t <sub>on</sub>		0.5	μs
Turn-Off Time V <sub>CC</sub> = 80 Vdc; I <sub>C</sub> = 10 Adc; I <sub>B1</sub> = I <sub>B2</sub> = 1.0 Adc	t <sub>off</sub>		1.25	μs
Storage Time V <sub>CC</sub> = 80 Vdc; I <sub>C</sub> = 10 Adc; I <sub>B1</sub> = I <sub>B2</sub> = 1.0 Adc	t <sub>s</sub>		1.0	μs

**SAFE OPERATING AREA**

<b>DC Tests</b> T <sub>C</sub> = +25°C, 1 Cycle, t = 1.0 s				
<b>Test 1</b> V <sub>CE</sub> = 8.0 Vdc, I <sub>C</sub> = 25 Adc				
	All Types			
<b>Test 2</b> V <sub>CE</sub> = 14 Vdc, I <sub>C</sub> = 14 Adc				
	All Types			
<b>Test 3</b> V <sub>CE</sub> = 100 Vdc, I <sub>C</sub> = 100 mAdc				
	2N6338			
V <sub>CE</sub> = 150 Vdc, I <sub>C</sub> = 66 mAdc				
	2N6341			

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