

## NPN POWER AMPLIFIER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/ 580

### Devices

2N4234                      2N4235                      2N4236

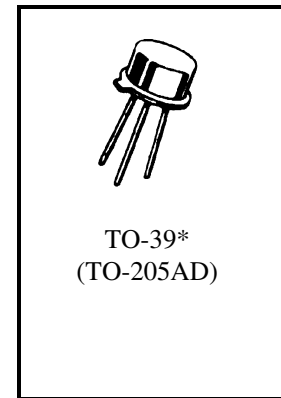
### Qualified Level

JAN  
JANTX  
JANTXV

### MAXIMUM RATINGS

Ratings	Symbol	2N4234	2N4235	2N4236	Units
Collector-Emitter Voltage	$V_{CEO}$	40	60	80	Vdc
Collector-Base Voltage	$V_{CBO}$	40	60	80	Vdc
Emitter-Base Voltage	$V_{EBO}$	7.0			Vdc
Collector Current	$I_C$	1.0			Adc
Base Current	$I_B$	0.5			Adc
Total Power Dissipation	$P_T$	@ $T_A = 25^{\circ}C^{(1)}$	1.0		W
		@ $T_C = 25^{\circ}C^{(2)}$	6.0		
Operating & Storage Junction Temperature	$T_J, T_{stg}$	-65 to +200			$^{\circ}C$

- 1) Derate linearly 5.7 mW/ $^{\circ}C$  for  $T_A > +25^{\circ}C$
- 2) Derate linearly 34 mW/ $^{\circ}C$  for  $T_C > +25^{\circ}C$



\*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 $I_C = 100$ mAdc	2N4234 2N4235 2N4236	$V_{(BR)CEO}$	40 60 80	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 30$ Vdc $V_{CE} = 40$ Vdc $V_{CE} = 60$ Vdc	2N4234 2N4235 2N4236	$I_{CEO}$	1.0 1.0 1.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 40$ Vdc, $V_{BE} = 1.5$ Vdc $V_{CE} = 60$ Vdc, $V_{BE} = 1.5$ Vdc $V_{CE} = 80$ Vdc, $V_{BE} = 1.5$ Vdc	2N4234 2N4235 2N4236	$I_{CEX}$	100 100 100	$\eta$ Adc
Collector-Base Cutoff Current $V_{CE} = 40$ Vdc $V_{CE} = 60$ Vdc $V_{CE} = 80$ Vdc	2N4234 2N4235 2N4236	$I_{CBO}$	100 100 100	$\eta$ Adc
Emitter-Base Cutoff Current $V_{BE} = 7.0$ Vdc		$I_{EBO}$	0.5	mAdc

**2N4234, 2N4235, 2N4236 JAN SERIES**

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
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**ON CHARACTERISTICS <sup>(3)</sup>**

Forward-Current Transfer Ratio I <sub>C</sub> = 100 mAdc, V <sub>CE</sub> = 1.0 Vdc I <sub>C</sub> = 250 mAdc, V <sub>CE</sub> = 1.0 Vdc I <sub>C</sub> = 500 mAdc, V <sub>CE</sub> = 1.0 Vdc	h <sub>FE</sub>	40 30 20	150	
Collector-Emitter Saturation Voltage I <sub>C</sub> = 1.0 Adc, I <sub>B</sub> = 100 mAdc I <sub>C</sub> = 500 mAdc, I <sub>B</sub> = 50 mAdc	V <sub>CE(sat)</sub>		0.6 0.4	Vdc
Base-Emitter Saturation Voltage I <sub>C</sub> = 500 mAdc, I <sub>B</sub> = 50 mAdc I <sub>C</sub> = 1.0 Adc, I <sub>B</sub> = 100 mAdc	V <sub>BE(sat)</sub>		1.1 1.5	Vdc

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 100 mAdc, V <sub>CE</sub> = 10 Vdc, f = 10 MHz	h <sub>fe</sub>	3.0		
Output Capacitance V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, f = 100 MHz	C <sub>obo</sub>		100	pF

**SAFE OPERATING AREA**

<p><b>DC Tests</b> T<sub>C</sub> = +25°C, 1 cycle, t ≥ 0.5 s</p> <p><b>Test 1</b> V<sub>CE</sub> = 6.0 Vdc, I<sub>C</sub> = 1.0 Adc</p> <p><b>Test 2</b> V<sub>CE</sub> = 12 Vdc, I<sub>C</sub> = 500 mAdc</p> <p><b>Test 3</b> V<sub>CE</sub> = 30 Vdc, I<sub>C</sub> = 166 mAdc    2N4234 V<sub>CE</sub> = 30 Vdc, I<sub>C</sub> = 166 mAdc    2N4235 V<sub>CE</sub> = 30 Vdc, I<sub>C</sub> = 166 mAdc    2N4236</p>
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(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.