

## PNP SILICON AMPLIFIER TRANSISTOR

Qualified per MIL-PRF-19500/357

### Devices

<b>2N3634</b>	<b>2N3635</b>	<b>2N3636</b>	<b>2N3637</b>
<b>2N3634L</b>	<b>2N3635L</b>	<b>2N3636L</b>	<b>2N3637L</b>

### Qualified Level

**JAN**  
**JANTX**  
**JANTXV**  
**JANS**

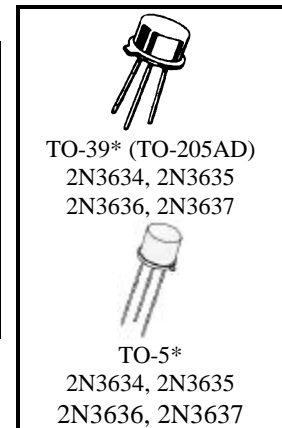
### MAXIMUM RATINGS

Ratings	Symbol	2N3634* 2N3635*	2N3636* 2N3637*	Unit
Collector-Emitter Voltage	$V_{CEO}$	140	175	Vdc
Collector-Base Voltage	$V_{CBO}$	140	175	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0		Vdc
Collector Current	$I_C$	1.0		Adc
Total Power Dissipation	$P_T$	@ $T_A = +25^{\circ}C^{(1)}$	1.0	W
		@ $T_C = +25^{\circ}C^{(2)}$	5.0	W
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200		$^{\circ}C$

\*Electrical characteristics for "L" suffix devices are identical to the "non L" corresponding devices

1) Derate linearly 5.71 mW/ $^{\circ}C$  for  $T_A > +25^{\circ}C$

2) Derate linearly 28.6 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 Current $I_C = 10$ mAdc	2N3634, 2N3635 2N3636, 2N3637	$V_{(BR)CEO}$	140 175	Vdc
Collector-Base Cutoff Current $V_{CB} = 100$ Vdc $V_{CB} = 140$ Vdc	2N3634, 2N3635	$I_{CBO}$	100 10	$\eta$ Adc $\mu$ Adc
Emitter-Base Cutoff Current $V_{EB} = 3.0$ Vdc $V_{EB} = 5.0$ Vdc		$I_{EBO}$	50 10	$\eta$ Adc $\mu$ Adc
Collector-Emitter Cutoff Current $V_{CE} = 100$ Vdc		$I_{CEO}$	10	$\mu$ Adc

2N3634, L, 2N3635, L, 2N3636, L, 2N3637, L JAN SERIES

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS (3)</b>				
Forward-Current Transfer Ratio I <sub>C</sub> = 0.1 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 50 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 150 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub>	2N3634, 2N3636	25 45 50 50 30	150	
I <sub>C</sub> = 0.1 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 1.0 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 50 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> I <sub>C</sub> = 150 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub>	2N3635, 2N3637	55 90 100 100 60	300	
Collector-Emitter Saturation Voltage I <sub>C</sub> = 10 mA <sub>dc</sub> , I <sub>B</sub> = 1.0 mA <sub>dc</sub> I <sub>C</sub> = 50 mA <sub>dc</sub> , I <sub>B</sub> = 5.0 mA <sub>dc</sub>	V <sub>CE(sat)</sub>		0.3 0.6	V <sub>dc</sub>
Base-Emitter Saturation Voltage I <sub>C</sub> = 10 mA <sub>dc</sub> , I <sub>B</sub> = 1.0 mA <sub>dc</sub> I <sub>C</sub> = 50 mA <sub>dc</sub> , I <sub>B</sub> = 5.0 mA <sub>dc</sub>	V <sub>BE(sat)</sub>	0.65	0.8 0.9	V <sub>dc</sub>

**DYNAMIC CHARACTERISTICS**

Forward Current Transfer Ratio I <sub>C</sub> = 30 mA <sub>dc</sub> , V <sub>CE</sub> = 30 V <sub>dc</sub> , f = 100 MHz	2N3634, 2N3636 2N3635, 2N3637	h <sub>fe</sub>	1.5 2.0	8.0 8.5	
Forward Current Transfer Ratio I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 1.0 kHz	2N3634, 2N3636 2N3635, 2N3637	h <sub>fe</sub>	40 80	160 320	
Small-Signal Short-Circuit Input Impedance I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 1.0 kHz	2N3634, 2N3636 2N3635, 2N3637	h <sub>je</sub>	100 200	600 1200	Ω Ω
Small-Signal Open-Circuit Output Admittance I <sub>C</sub> = 10 mA <sub>dc</sub> , V <sub>CE</sub> = 10 V <sub>dc</sub> , f = 1.0 kHz		h <sub>oe</sub>		200	μs
Output Capacitance V <sub>CB</sub> = 20 V <sub>dc</sub> , I <sub>E</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz		C <sub>obo</sub>		10	pF
Input Capacitance V <sub>EB</sub> = 1.0 V <sub>dc</sub> , I <sub>C</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz		C <sub>ibo</sub>		75	pF
Noise Figure V <sub>CE</sub> = 10 V <sub>dc</sub> , I <sub>C</sub> = 0.5 mA <sub>dc</sub> , R <sub>g</sub> = 1.0 Ω	f = 100 Hz f = 1.0 kHz f = 10 kHz	NF		5.0 3.0 3.0	dB

**SAFE OPERATING AREA**

<b>DC Tests</b>	
T <sub>C</sub> = 25 <sup>0</sup> C, 1 Cycle, t = 1.0 s	
<b>Test 1</b>	
V <sub>CE</sub> = 100 V <sub>dc</sub> , I <sub>C</sub> = 30 mA <sub>dc</sub>	2N3634, 2N3635
V <sub>CE</sub> = 130 V <sub>dc</sub> , I <sub>C</sub> = 20 mA <sub>dc</sub>	2N3636, 2N3637
<b>Test 2</b>	
V <sub>CE</sub> = 50 V <sub>dc</sub> , I <sub>C</sub> = 95 mA <sub>dc</sub>	
<b>Test 3</b>	
V <sub>CE</sub> = 5.0 V <sub>dc</sub> , I <sub>C</sub> = 1.0 A <sub>dc</sub>	

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