

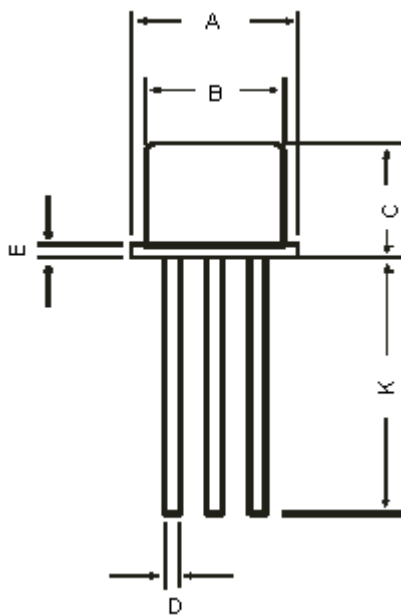
# High Speed Switching Transistors



## Features:

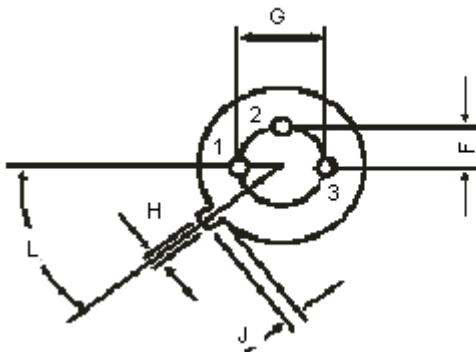
- PNP silicon planar switching transistors
- Fast switching devices exhibiting short turn-off and low saturation voltage characteristics
- Switching and linear application DC and VHF amplifier applications

## TO-18 Metal Can Package



Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.4	0.53
E	-	0.76
F	-	1.27
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	-
L	45°	

Dimensions : Millimetres



## Pin Configuration

1. Emitter
2. Base
3. Collector

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## Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Collector Emitter Voltage	$V_{CEO}$	60	V
Collector Base Voltage	$V_{CBO}$		
Emitter Base Voltage	$V_{EBO}$	5	
Collector Current Continuous	$I_C$	600	mA
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	400 2.28	mW mW / $^\circ\text{C}$
Power Dissipation at $T_c = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.8 10.3	W mW / $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	-	$^\circ\text{C}$

## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Value		Unit
			Minimum	Maximum	
Collector Emitter Voltage	$V_{CEO}^*$	$I_C = 10 \text{ mA}, I_B = 0$	60	-	V
Collector Base Voltage	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$		-	
Emitter Base Voltage	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	5	-	
Collector Cut off Current	$I_{CBO}$	$V_{CB} = 50 \text{ V}, I_E = 0$	-	10	nA
	$I_{CEX}$	$T_a = 150^\circ\text{C}$ $V_{CB} = 50 \text{ V}, I_E = 0$ $V_{CE} = 30 \text{ V}, V_{BE} = 0.5 \text{ V}$	- -	10 50	$\mu\text{A}$ nA
Base Current	$I_B$	$V_{CE} = 30 \text{ V}, V_{BE} = 0.5 \text{ V}$	-	50	nA
Collector Emitter Saturation Voltage	$V_{CE(Sat)}^*$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	-	0.4 1.6	V
Base Emitter Saturation Voltage	$V_{BE(Sat)}^*$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	-	1.3 2.6	V V
	-	-	2N2906A	2N2907A	-
DC Current Gain	$h_{FE}$	$I_C = 0.1 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 150 \text{ mA}, V_{CE} = 10 \text{ V}^*$ $I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}^*$	>40 >40 >40 40 - 120 >40	>75 >100 >100 100 - 300 >50	-

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## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Value		Unit
			Minimum	Maximum	
<b>Dynamic Characteristics</b>					
Transition Frequency	$f_{T^{**}}$	$I_C = 50 \text{ mA}, V_{CE} = 20 \text{ V}, f = 100 \text{ MHz}$	200	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 100 \text{ KHz}$	-	8	pF
Input Capacitance	$C_{ib}$	$V_{BE} = 2 \text{ V}, I_C = 0, f = 100 \text{ KHz}$	-	30	
<b>Switching Time</b>					
Delay Time	$t_d$	$I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}$	-	10	ns
Rise Time	$t_r$	$V_{CC} = 30 \text{ V}$	-	40	
Turn on Time	$t_{on}$	-	-	45	
Storage time	$t_s$	$I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$	-	80	
Fall Time	$t_f$	$V_{CC} = 6 \text{ V}$	-	30	
Turn Off Time	$t_{off}$	-	-	100	

\* Pulse Test :- pulse width = 300  $\mu\text{s}$ , duty cycle = 2%

\*\*  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity

## Specification Table

$V_{CE0}$ Maximum (V)	$I_C$ Maximum (A)	$V_{CE(sat)}$ Maximum (V) at $I_C = 150 \text{ mA}$	$t_{off}$ Maximum (ns)	$h_{FE}$ Minimum at $I_C = 150 \text{ mA}$	$P_D$ at $T_a = 25^\circ\text{C}$ (mW)	Package and Pin Out	Part Number
60	0.6	0.4	100	40	400	TO-18	2N2906A 2N2907A

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