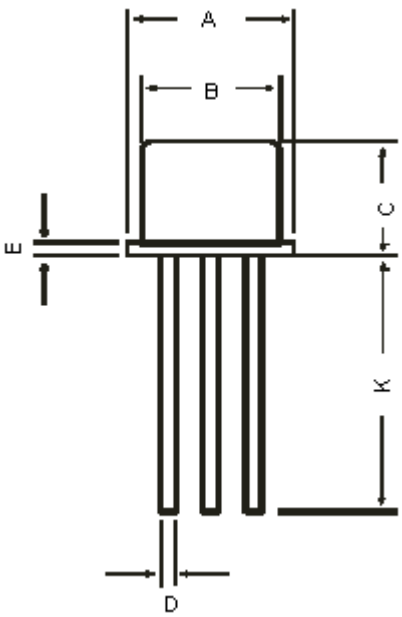
High Speed Switching Transistors

Features:

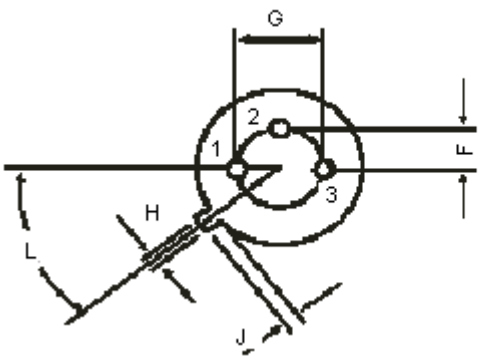
- PNP silicon planar switching transistors
- Fast switching devices exhibiting short turn-off and low saturation voltage characteristics
- Switching and linear application DC and VHF amplifier applications

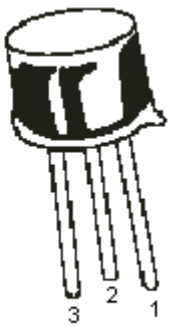
TO-18 Metal Can Package



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

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°C Derate above 25°C	P_D	400 2.28	mW mW / °C
Power Dissipation at T_c = 25°C Derate above 25°C	P_D	1.8 10.3	W mW / °C
Operating and Storage Junction Temperature Range	T_j,T_{stg}	-	°C

Electrical Characteristics (T_a = 25°C unless otherwise specified)

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

Electrical Characteristics (T_a = 25°C unless otherwise specified)

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

* Pulse Test :- pulse width = 300 µs, duty cycle = 2%
** ft is defined as the frequency at which \hfe/ extrapolates to unity

Specification Table

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