

High Speed Switching Transistor



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



Pin Configuration

1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings

Description	Symbol	Value	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 @ $T_a = 25^\circ\text{C}$ Derate above 25°C	P_D	400 2.28	mW mW/°C
Power Dissipation @ $T_c = 25^\circ\text{C}$ Derate Above 25°C	P_D	1.8 10.3	W mW/°C
Operating and Storage Junction Temperature Range	T_j, T_{stg}	-55 to +175	°C

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

Description	Symbol	Test Condition	Min.	Max.	Unit
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} I_{CEX}	$V_{CB} = 50\text{V}, I_E = 0$ $T_A = 150^\circ\text{C}$	-	10	nA
		$V_{CB} = 50\text{V}, I_E = 0$	-	10	μA
		$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$	-	50	nA
Base Current	I_B	$V_{CE}=30\text{V}, V_{BE}=0.5\text{V}$	-	50	nA
Collector Emitter Saturation Voltage	$V_{CE(SAT)*}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$	-	1.3	V
		$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	2.6	
Base Emitter Saturation Voltage	$V_{BE(SAT)*}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$	-	1.3	V
		$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	2.6	

High Speed Switching Transistor

Description	Symbol	Test Condition	Min.	Max.	Unit
			2N2906	2N2907	
DC Current Gain	h_{FE}	$I_C = 0.1\text{mA}, V_{CE} = 10\text{V}$	>20	>35	-
		$I_C = 1\text{mA}, V_{CE} = 10\text{V}$	>25	>50	
		$I_C = 10\text{mA}, V_{CE} = 10\text{V}$	>35	>75	
		$I_C = 150\text{mA}, V_{CE} = 10\text{V}^*$	40 - 120	100 - 300	
		$I_C = 500\text{mA}, V_{CE} = 10\text{V}^*$	>20	>30	

*Pulse Test : Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

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

Parameter	Symbol	Test Condition	Value		Unit
			Min.	Max.	
Dynamic Characteristics					
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	
Switching Time					
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	

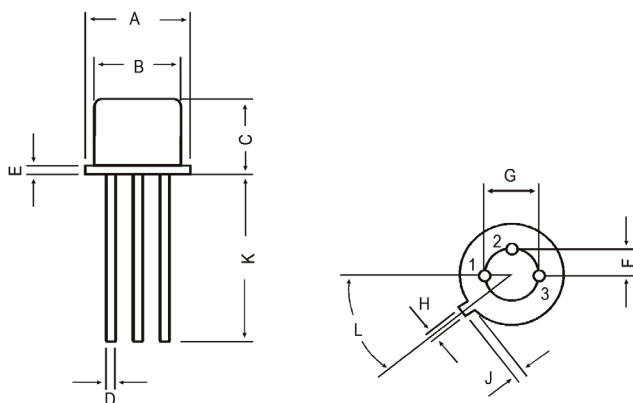
** f_T is defined as the frequency at which h_{fe} extrapolates to unity

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

High Speed Switching Transistor

TO-18 Metal Can Package



Dimensions	Min.	Max.
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

Part Number Table

Description	Part Number
High Speed Switching Transistors	2N2906A
	2N2907A

Important Notice : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2012.