

2N2907

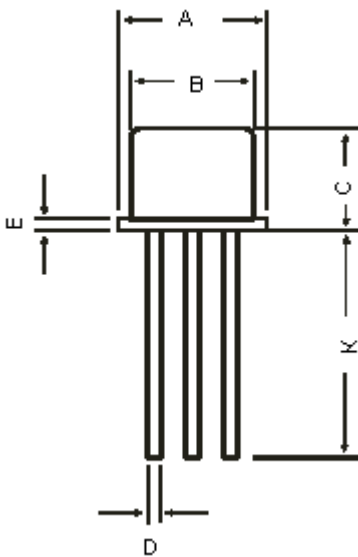
High Speed Switching Transistor



Features:

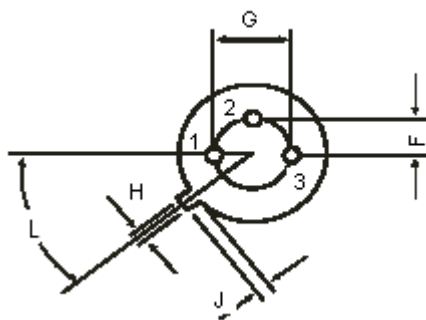
- NPN silicon planar switching transistors.
- Fast switching devices exhibiting short turn-off and low saturation voltage characteristics.
- Switching and linear application DC and VHF amplifier applications.

TO-18 Metal Can Package



Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	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



2N2907

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Switching and Linear Application DC and VHF Amplifier Applications

Parameter	Symbol	-	Units
Collector Emitter Voltage	V_{CEO}	40	V
Collector Base Voltage	V_{CBO}	60	
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°C	P_D	400 2.28	W mW/ $^\circ\text{C}$
Power Dissipation at $T_c = 25^\circ\text{C}$ Derate above 25°C	P_D	1.8 10.3	
Operating and Storage Junction Temperature Range	T_j, T_{stg}	-65 to +200	$^\circ\text{C}$

Electrical Characteristics ($T_a = 25^\circ\text{C}$ Unless Otherwise Specified)

Parameter	Symbol	Test Condition	Value		Units
			Minimum	Maximum	
Collector Emitter Breakdown Voltage	BV_{CEO}^*	$I_C = 10\text{mA}, I_B = 0$	40	-	V
Collector Base Breakdown Voltage	BV_{CBO}	$I_C = 10\mu\text{A}, I_E = 0$	60	-	
Emitter Base Breakdown Voltage	BV_{EBO}	$I_E = 10\mu\text{A}, I_C = 0$	5	-	
Collector Cut off Current	I_{CBO}	$V_{CB} = 50\text{V}, I_E = 0$	-	20	nA
		$V_{CB} = 50\text{V}, I_E = 0$ $T_a = 150^\circ\text{C}$	-	20	μA
Collector Cut off Current	I_{CEX}	$V_{CE} = 30\text{V}, V_{BE} = 0.5\text{V}$	-	50	nA
Base current	I_B	$V_{CE} = 30\text{V}, V_{BE} = 0.5\text{V}$	-	50	
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	
DC Current Gain	h_{FE}	$I_C = 0.1\text{mA}, V_{CE} = 10\text{V}$	35	300	-
		$I_C = 1\text{mA}, V_{CE} = 10\text{V}$	50		
		$I_C = 10\text{mA}, V_{CE} = 10\text{V}$	75		
		$I_C = 150\text{mA}, V_{CE} = 10\text{V}^*$	100		
		$I_C = 500\text{mA}, V_{CE} = 10\text{V}^*$	30		

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

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Electrical Characteristics ($T_a = 25^\circ\text{C}$ Unless Otherwise Specified)

Parameter	Symbol	Test Condition	Value		Units
			Minimum	Maximum	
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 Characteristics					
Delay Time	t_d	-	-	10	nS
Rise Time	t_r	$I_C = 150\text{mA}, I_{B1} = 15\text{mA}, V_{CC} = 30\text{V}$	-	40	
Turn on Time	t_{on}	-	-	45	
Storage Time	t_s	-	-	80	
Fall Time	t_f	$I_C = 150\text{mA}, I_{B1} = I_{B2} = 15\text{mA},$	-	30	
Turn Off Time	t_{off}	$V_{CE} = 6\text{V}$	-	100	

Specifications

V_{CEO} 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
40	0.6	0.4	100	100	400	TO-18	2N2907

2N2907

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