

Low Power Bipolar Transistors

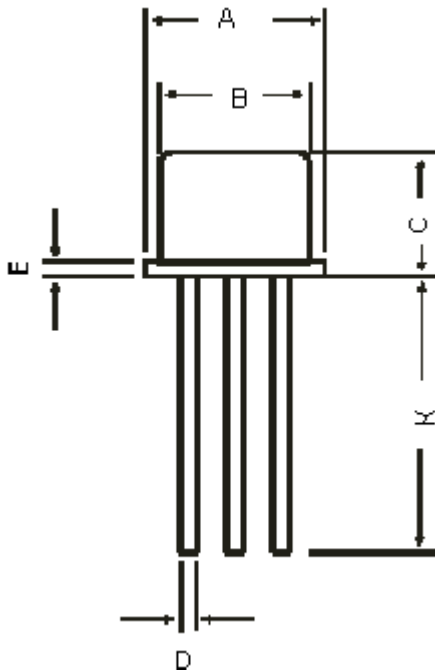


Features:

- NPN Silicon Planar Switching Transistors
- Switching and Linear application DC and VHF Amplifier applications



TO-18 Metal Can Package



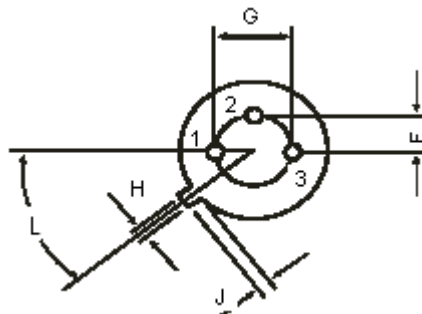
Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.4	0.53
E	-	0.76
F	-	1.27
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	-
L	45°	

Dimensions : Millimetres



Pin Configuration :

1. Emitter
2. Base
3. Collector



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Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless specified otherwise)

Description	Symbol	2N2222	Unit
Collector Emitter Voltage	V_{CEO}	30	V
Collector Base Voltage	V_{CBO}	60	
Emitter Base Voltage	V_{EBO}	5	
Collector Current Continuous	I_C	800	mA
Power Dissipation at $T_a = 25^\circ\text{C}$ Derate above 25°C	P_D	500	mW
Power Dissipation at $T_C = 25^\circ\text{C}$ Derate above 25°C		2.28	mW / $^\circ\text{C}$
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 specified otherwise)

Description	Symbol	Test Condition	Value		Unit
			Minimum	Maximum	
Collector Emitter Breakdown Voltage	BV_{CEO}	$I_C = 10 \text{ mA}, I_B = 0$	30	-	V
Collector Base Breakdown Voltage	BV_{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	60	-	
Emitter Base Breakdown Voltage	V_{EBOf}	$I_E = 10 \mu\text{A}, I_C = 0$	5	-	nA μA
Collector Leakage Current	I_{CBO}	$V_{CB} = 50 \text{ V}, I_E = 0$ $V_{CB} = 50 \text{ V}, I_E = 0$ $T_a = 150^\circ\text{C}$	-	10 10	
Collector Emitter Saturation Voltage	$*V_{CE}(\text{Sat})$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	-	0.4 1.6	V
Base Emitter Saturation Voltage	$*V_{BE}(\text{Sat})$	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$	0.6	1.3 2.6	
DC Current Gain	h_{FE}	$I_C = 0.1 \text{ mA}, V_{CE} = 10 \text{ V}^*$ $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}^*$ $I_C = 150 \text{ mA}, V_{CE} = 1 \text{ V}^*$ $I_C = 150 \text{ mA}, V_{CE} = 1 \text{ V}^*$ $I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}^*$	35 50 75 50 100 30	300	-

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

Description	Symbol	Test Condition	Value		Unit
			Minimum	Maximum	
Dynamic Characteristics					
Transition Frequency	f_t	$I_C = 20\text{ mA}$, $V_{CE} = 20\text{ V}$ $f = 100\text{ MHz}$	250	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{ V}$, $I_E = 0$ $f = 100\text{ kHz}$	-	8	pF
Input Capacitance	C_{ib}	$V_{EB} = 0.5\text{ V}$, $I_C = 0$ $f = 100\text{ kHz}$	-	30	
Switching Characteristics					
Delay Time	t_d	$I_C = 150\text{ mA}$, $I_{B1} = 15\text{ mA}$	-	10	ns
Rise Time	t_r	$V_{CC} = 30\text{ V}$, $V_{BE(\text{off})} = 0.5\text{ V}$	-	25	
Storage Time	t_s	$I_C = 150\text{ mA}$, $I_{B1} = 15\text{ mA}$	-	225	
Fall Time	t_f	$I_{B2} = 15\text{ mA}$, $V_{CC} = 30\text{ V}$	-	60	

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

Part Number Table

Package	Part Number
Transistor, NPN, TO - 18	2N2222

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