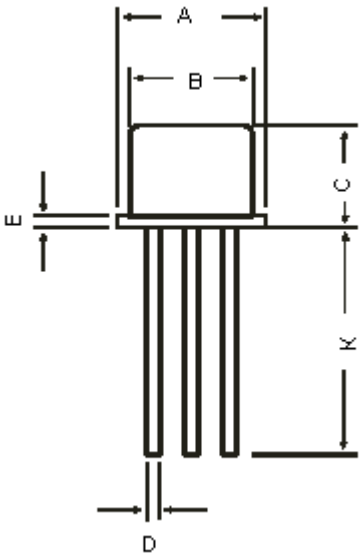
2N2222

Low Power Bipolar Transistors

Features:

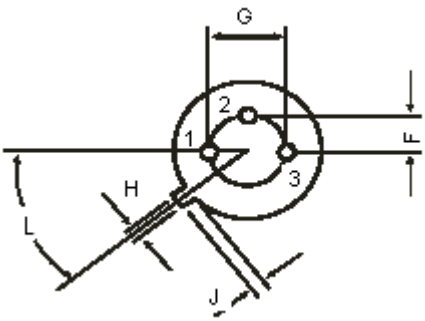
- NPN Silicon Planar Switching Transistors.
- Switching and Linear application DC and VHF Amplifier applications.

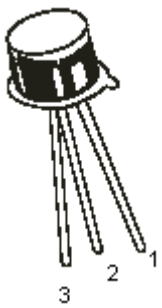
TO-18 Metal Can Package



Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.40	0.53
E	-	0.76
F	-	1.27
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.70	-
L	45°	

Dimensions : Millimetres





Pin Configuration:
1. Emitter
2. Base
3. Collector

Absolute Maximum Ratings (T_a = 25°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°C Derate above 25°C	P_D	500 2.28	mW mW/°C
Power Dissipation at T_C = 25°C Derate above 25°C		1.2 6.85	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

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

Description	Symbol	Test Condition	Value		Unit
			Minimum	Maximum	
Collector Emitter Breakdown Voltage	BV_{CEO}	I_C = 10mA, I_B = 0	30	-	V
Collector Base Breakdown Voltage	BV_{CBO}	I_C = 10µA, I_E = 0	60	-	
Emitter Base Breakdown Voltage	V_{EBOf}	I_E = 10µA, I_C = 0	5	-	
Collector Leakage Current	I_{CBO}	V_{CB} = 50V, I_E = 0 V_{CB} = 50V, I_E = 0 T_a = 150°C	-	10 10	nA µA
Collector Emitter Saturation Voltage	*$V_{CE\ (Sat)}$	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA	-	0.4 1.6	V
Base Emitter Saturation Voltage	*$V_{BE\ (Sat)}$	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA	0.6	1.3 2.6	

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

Parameter	Symbol	Test Condition	2N2222		Unit
			Minimum	Maximum	
DC Current Gain	h_{FE}	I_C = 0.1mA, V_{CE} = 10V* I_C = 1mA, V_{CE} = 10V I_C = 10mA, V_{CE} = 10V* I_C = 150mA, V_{CE} = 1V* I_C = 150mA, V_{CE} = 1V* I_C = 500mA, V_{CE} = 10V*	35 50 75 50 100 30	300	-
Dynamic Characteristics					
Transition Frequency	f_t	I_C = 20mA, V_{CE} = 20V f = 100MHz	250	-	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0 f = 100kHz	-	8	pF
Input Capacitance	C_{ib}	V_{EB} = 0.5V, I_C = 0 f = 100kHz	-	30	
Switching Characteristics					
Delay Time	t_d	I_C = 150mA,I_{B1} = 15mA	-	10	ns
Rise Time	t_r	V_{CC} = 30V, $V_{BE\ (off)}$ = 0.5V	-	25	
Storage Time	t_s	I_C = 150mA, I_{B1} = 15mA	-	225	
Fall Time	t_f	I_{B2} = 15mA, V_{CC} = 30V	-	60	

*Pulse Condition: Pulse Width ≤300µs, Duty Cycle ≤2%.

Part Number Table

Package	Part Number
TO-18	2N2222