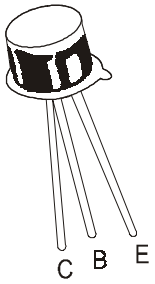
NPN SILICON PLANAR SWITCHING TRANSISTORS

2N2221
2N2222

TO-18
Metal Can Package



Switching and Linear Application DC and VHF Amplifier Applications

ABSOLUTE MAXIMUM RATINGS (Ta=25ºC unless specified otherwise)

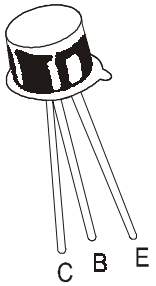
DESCRIPTION	SYMBOL	2N2221, 22	UNIT
Collector Emitter Voltage	V_{CEO}	30	V
Collector Base Voltage	V_{CBO}	60	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current Continuous	I_C	800	mA
Power Dissipation @Ta=25ºC	P_D	500	mW
Derate Above 25ºC		2.28	mW/ºC
Power Dissipation @ Tc=25ºC	P_D	1.2	W
Derate Above 25ºC		6.85	mW/ºC
Operating and Storage Junction Temperature Range	T_j, T_{stg}	-65 to +200	ºC

ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE MIN	VALUE MAX	UNIT
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		V
Emitter Base Breakdown Voltage	BV_{EBOf}	I_E=10µA, I_C=0	5		V
Collector Leakage Current	I_{CBO}	V_{CB}=50V, I_E=0		10	nA
		V_{CB}=50V, I_E=0 Ta=150 ° C		10	µA
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$*	I_C=150mA,I_B=15mA		0.4	V
		I_C=500mA,I_B=50mA		1.6	V
Base Emitter Saturation Voltage	$V_{BE(Sat)}$*	I_C=150mA,I_B=15mA	0.6	1.3	V
		I_C=500mA,I_B=50mA		2.6	V

NPN SILICON PLANAR SWITCHING TRANSISTORS

2N2221
2N2222



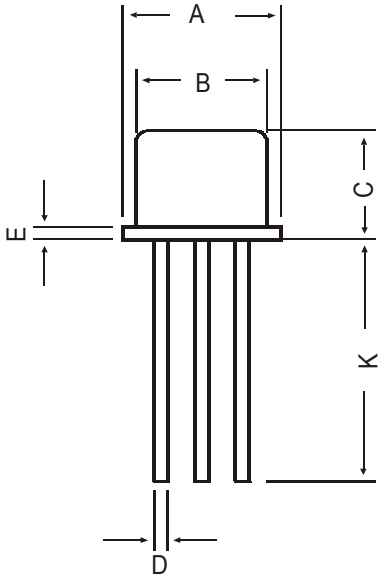
TO-18
Metal Can Package

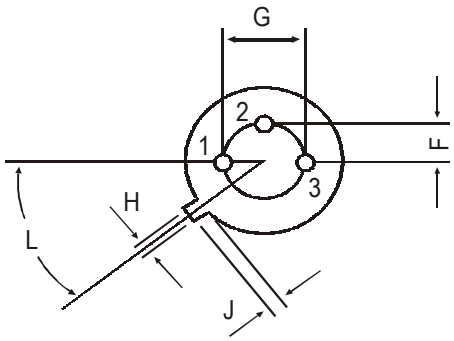
ELECTRICAL CHARACTERISTICS (Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	2221		2222		UNIT
			MIN	MAX	MIN	MAX	
DC Current Gain	h_{FE}	I_C=0.1mA,V_{CE}=10V*	20		35		
		I_C=1mA,V_{CE}=10V	25		50		
		I_C=10mA,V_{CE}=10V*	35		75		
		I_C=150mA,V_{CE}=1V*	20		50		
		I_C=150mA,V_{CE}=1V*	40	120	100	300	
		I_C=500mA,V_{CE}=10V*	20		30		
DYNAMIC CHARACTERISTICS							
Transition Frequency	f_T	I_C=20mA, V_{CE}=20V f=100MHz	250		250		MHz
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0 f=100KHz		8		8	pF
Input Capacitance	C_{ib}	V_{EB}=0.5V, I_C=0 f=100kHz		30		30	pF
SWITCHING CHARACTERISTICS							
Delay time	t_d					10	ns
		I_C=150mA,IB1=15mA					
Rise time	t_r	V_{CC}=30V,$V_{BE(off)}$=0.5V				25	ns
Storage time	t_s					225	ns
		I_C=150mA, IB1=15mA					
Fall time	t_f	IB2=15mA, V_{CC}=30V				60	ns

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

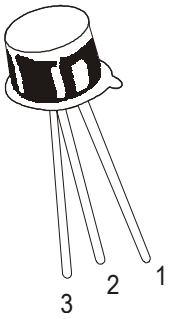
TO-18 Metal Can Package





All diminsions in mm.

DIM	MIN	MAX
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 DEG	



PIN CONFIGURATION
1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-18	1K/polybag	350 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	34 kgs

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