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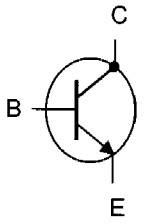
NPN 2N3108 – 2N3110

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

The 2N3108 and 2N3110 are NPN transistors mounted in TO-39 metal package.
They are intended for large signal, low noise industrial applications.



ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value		Unit
			2N3108	2N3110	
V_{CEO}	Collector-Emitter Voltage	I_B =0	60	40	V
V_{CBO}	Collector-Base Voltage	I_E =0	100	80	V
V_{EBO}	Emitter-Base Voltage	I_C =0	5		V
I_C	Collector Current		1		A
P_D	Total Power Dissipation	T_{amb} = 25°	0.8		W
		T_{case} = 25°	5		
T_J	Junction Temperature		-65 to +150		°C
T_{Stg}	Storage Temperature range		-65 to +150		

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to ambient	219	°C/W
R_{thJ-c}	Thermal Resistance, Junction to case	35	°C/W

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ELECTRICAL CHARACTERISTICS

Tj=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	V_{CB} = 60 V, I_E = 0 T_{amb} = 150°C		-	-	10	µA
I_{CES}	Collector Cutoff Current	V_{CE} = 60 V, V_{BE} = 0		-	-	10	nA
I_{EBO}	Emitter Cutoff Current	V_{BE} = 5.0 V, I_C = 0		-	-	10	nA
V_{CBO}	Collector-Base Breakdown Voltage	I_C = 100 µA, I_E = 0	2N3108	100	-	-	V
			2N3110	80	-	-	
V_{CEO}	Collector-emitter Breakdown Voltage	I_C = 30 mA, I_B = 0	2N3108	60	-	-	V
			2N3110	40	-	-	
V_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100 µA, I_C = 0		7	-	-	V
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage	I_C = 150 mA, I_B = 15 mA		-	-	0.25	V
		I_C = 1 A, I_B = 100 mA		-	-	1	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage	I_C = 150 mA, I_B = 15 mA		-	-	1.1	V
		I_C = 1 A, I_B = 100 mA		-	-	2	
h_{FE}	DC Current Gain	I_C = 150 mA, V_{CE} = 1 V		40	-	120	-
		I_C = 0.1 mA, V_{CE} = 10 V		20		-	
		I_C = 500 mA, V_{CE} = 10 V		25	-	-	
		I_C = 150 mA, V_{CE} = 10 V T_{amb} = -55°C		15	-	-	
f_T	Transition frequency	I_C = 50 mA, V_{CE} = 10 V f = 20MHz		60	-	-	MHz
C_{EBO}	Emitter-Base Capacitance	I_C = 0, V_{EB} = 0.5 V f = 1MHz		-	-	80	pF
C_{CBO}	Collector-Base Capacitance	I_E = i_e =0, V_{CB} = 10 V f = 1MHz	2N3108	-	-	20	pF
			2N3110	-	-	25	

SWITCHING TIMES

Symbol	Ratings		Value	Unit
t_{on}	Turn-on time	I_C = 150 mA; I_{B1} = 7.5 mA, V_{CC} = 20 V	200	ns
t_{off}	Turn-off time	I_C = 150 mA I_{B1} = -I_{B2} = 7.5 mA V_{CC} = 20 V	600	

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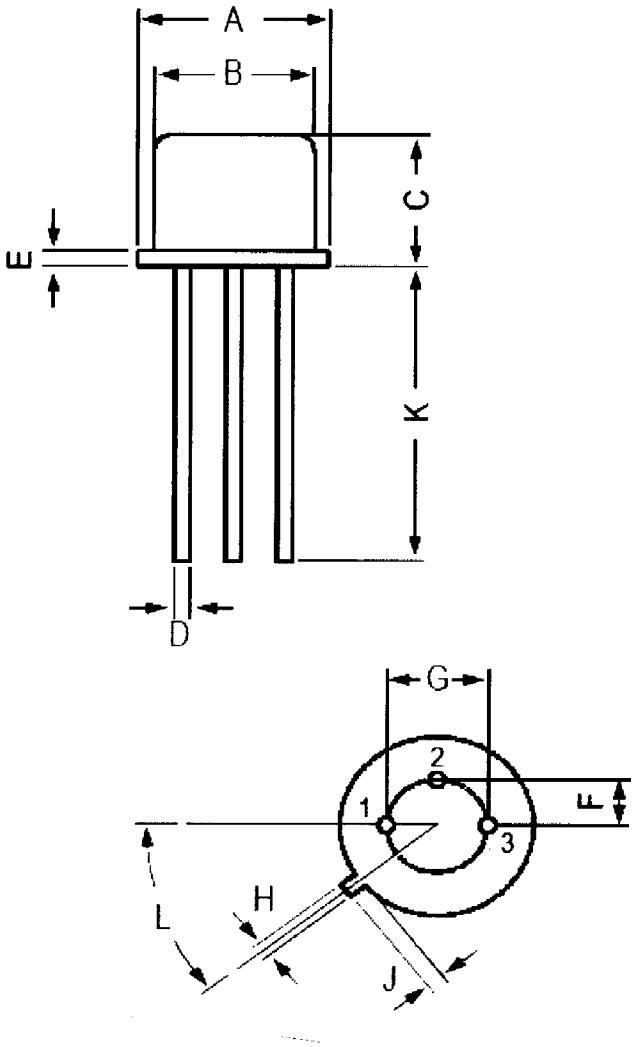
MECHANICAL DATA CASE TO-39

DIMENSIONS (mm)		
	min	max
A	8.50	9.39
B	7.74	8.50
C	6.09	6.60
D	0.40	0.53
E	-	0.88
F	2.41	2.66
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.70	-
L	42°	48°



Pin 1 :	Emitter
Pin 2 :	Base
Pin 3 :	Collector
Case :	Collector