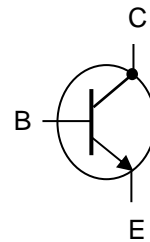


## NPN 2N3108 – 2N3110

### 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. Compliance to RoHS.



#### 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	$T_{amb} = 25^\circ$	0.8		W
		$T_{case} = 25^\circ$	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

## NPN 2N3108 – 2N3110

### ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0 T <sub>amb</sub> = 150°C	-	-	10	μA	
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = 60 V, V <sub>BE</sub> = 0	-	-	10	nA	
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>BE</sub> = 5.0 V, I <sub>C</sub> = 0	-	-	10	nA	
V <sub>CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 100 μA, I <sub>E</sub> = 0	2N3108	100	-	-	V
			2N3110	80	-	-	
V <sub>CEO</sub>	Collector-emitter Breakdown Voltage	I <sub>C</sub> = 30 mA, I <sub>B</sub> = 0	2N3108	60	-	-	V
			2N3110	40	-	-	
V <sub>EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0	7	-	-	V	
V <sub>CE(SAT)</sub>	Collector-Emitter saturation Voltage	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA	-	-	0.25	V	
		I <sub>C</sub> = 1 A, I <sub>B</sub> = 100 mA	-	-	1		
V <sub>BE(SAT)</sub>	Base-Emitter saturation Voltage	I <sub>C</sub> = 150 mA, I <sub>B</sub> = 15 mA	-	-	1.1	V	
		I <sub>C</sub> = 1 A, I <sub>B</sub> = 100 mA	-	-	2		
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 150 mA, V <sub>CE</sub> = 1 V	40	-	120	-	
		I <sub>C</sub> = 0.1 mA, V <sub>CE</sub> = 10 V	20	-	-		
		I <sub>C</sub> = 500 mA, V <sub>CE</sub> = 10 V	25	-	-		
		I <sub>C</sub> = 150 mA, V <sub>CE</sub> = 10 V T <sub>amb</sub> = -55°C	15	-	-		
f <sub>T</sub>	Transition frequency	I <sub>C</sub> = 50 mA, V <sub>CE</sub> = 10 V f = 20MHz	60	-	-	MHz	
C <sub>EBO</sub>	Emitter-Base Capacitance	I <sub>C</sub> = 0, V <sub>EB</sub> = 0.5 V f = 1MHz	-	-	80	pF	
C <sub>CBO</sub>	Collector-Base Capacitance	I <sub>E</sub> = i <sub>e</sub> = 0, V <sub>CB</sub> = 10 V f = 1MHz	2N3108	-	-	20	pF
			2N3110	-	-	25	

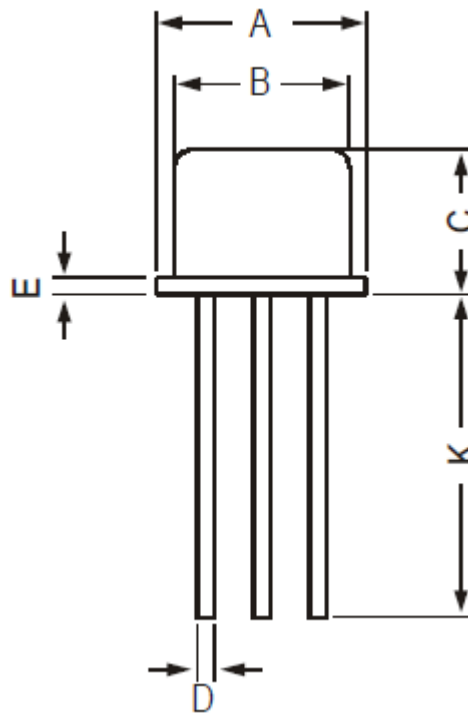
### SWITCHING TIMES

Symbol	Ratings	Value	Unit
t <sub>on</sub>	Turn-on time	I <sub>C</sub> = 150 mA; I <sub>B1</sub> = 7.5 mA, V <sub>CC</sub> = 20 V	200
t <sub>off</sub>	Turn-off time	I <sub>C</sub> = 150 mA I <sub>B1</sub> = -I <sub>B2</sub> = 7.5 mA V <sub>CC</sub> = 20 V	600

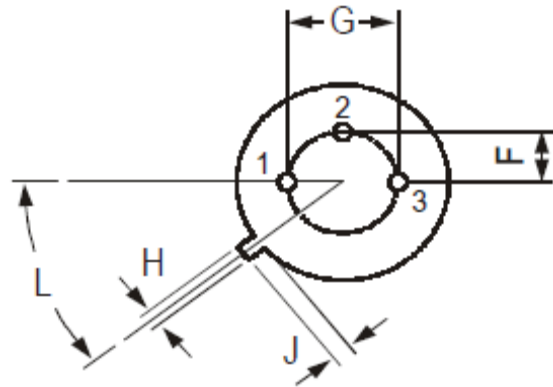
## NPN 2N3108 – 2N3110

### 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



Revised August 2012

Information furnished is believed to be accurate and reliable. However, Comset Semiconductors assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. Data are subject to change without notice. Comset Semiconductors makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Comset Semiconductors assume any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Comset Semiconductors' products are not authorized for use as critical components in life support devices or systems.