



## PNP 2N4030 – 2N4031 – 2N4032 – 2N4033

### GENERAL PURPOSE AMPLIFIERS AND SWITCHES

They are silicon planar epitaxial PNP 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	
$-V_{CBO}$	Collector-Base Voltage $I_E = 0$	2N4030	60	V
		2N4031	80	
		2N4032	60	
		2N4033	80	
$-V_{CEO}$	Collector-Emitter Voltage $I_B = 0$	2N4030	60	V
		2N4031	80	
		2N4032	60	
		2N4033	80	
$-V_{EBO}$	Emitter-Base Voltage $I_C = 0$	2N4030	5	V
		2N4031		
		2N4032		
		2N4033		
$-I_C$	Collector Current	2N4030	1	A
		2N4031		
		2N4032		
		2N4033		
$P_{tot}$		@ $T_{case} = < 25^\circ$	4	Watts
		@ $T_{amb} = < 25^\circ$	0.8	
$T_J$	Junction Temperature	200	$^\circ C$	
$T_{Stg}$	Storage Temperature range	-65 to +200	$^\circ C$	

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJ-c}$	Thermal Resistance, Junction-case	44	K/ W
$R_{thJ-amb}$	Thermal Resistance, Junction-ambient	218	K/ W

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit			
<b>-I<sub>CB0</sub></b>	Collector – Cutoff Current	I <sub>E</sub> = 0 ; V <sub>CB</sub> = 50 V	2N4030	-	-	50	nA		
		I <sub>E</sub> = 0 ; V <sub>CB</sub> = 60 V	2N4031	-	-	-	-		
		I <sub>E</sub> = 0 ; V <sub>amb</sub> = 150°C	V <sub>CB</sub> = 50 V	2N4030	-	-	50	μA	
			V <sub>CB</sub> = 60 V	2N4031	-	-	-	-	
		I <sub>E</sub> = 0 ; V <sub>CB</sub> = 50 V	2N4032	-	-	50	nA		
		I <sub>E</sub> = 0 ; V <sub>CB</sub> = 60 V	2N4033	-	-	-	-		
<b>-I<sub>CB0</sub></b>	Collector – Cutoff Current	I <sub>E</sub> = 0 ; V <sub>amb</sub> = 150°C	V <sub>CB</sub> = 50 V	2N4032	-	-	50	μA	
			V <sub>CB</sub> = 60 V	2N4033	-	-	-	-	
		<b>-V<sub>CB0</sub></b>	Collector – Base Breakdown Voltage	-I <sub>C</sub> = 10 μA I <sub>E</sub> = 0	2N4030	60	-	-	V
					2N4031	80	-	-	
					2N4032	60	-	-	
					2N4033	80	-	-	
<b>-V<sub>CE0</sub> (*)</b>	Collector – Emitter Breakdown Voltage	-I <sub>C</sub> = 10 mA I <sub>B</sub> = 0	2N4030	60	-	-	V		
			2N4031	80	-	-			
			2N4032	60	-	-			
			2N4033	80	-	-			
<b>-V<sub>EB0</sub></b>	Emitter – Base Breakdown Voltage	-I <sub>E</sub> = 10 μA I <sub>C</sub> = 0	2N4030	5	-	-	V		
			2N4031						
			2N4032						
			2N4033						
<b>-V<sub>CE(SAT)</sub> (*)</b>	Collector-Emitter Saturation Voltage	-I <sub>C</sub> = 150 mA , -I <sub>B</sub> = 15 mA -I <sub>C</sub> = 500 mA , -I <sub>B</sub> = 50 mA -I <sub>C</sub> = 1 A , -I <sub>B</sub> = 100 mA	2N4030	-	-	0.15	V		
			2N4031	-	-	0.5			
			2N4032	-	-	1			
			2N4033	-	-	-			
<b>-V<sub>BE</sub> (*)</b>	Base-Emitter Saturation Voltage	-I <sub>C</sub> = 150 mA , -I <sub>B</sub> = 15 mA -I <sub>C</sub> = 500 mA , -I <sub>B</sub> = 50 mA -I <sub>C</sub> = 1 A , -I <sub>B</sub> = 100 mA	2N4030	-	-	0.9	V		
			2N4031	-	-	1.1			
			2N4032	-	-	1.2			
			2N4033	-	-	-			
<b>h<sub>FE</sub> (*)</b>	DC Current Gain	-I <sub>C</sub> = 100 μA , -V <sub>CE</sub> = 5 V	2N4030	30	-	-	-		
			2N4031						
			2N4032						
			2N4033						
		-I <sub>C</sub> = 100 mA , -V <sub>CE</sub> = 5V	2N4030	40	-	120			
			2N4031						
			2N4032						
			2N4033						
		-I <sub>C</sub> = 500 mA , -V <sub>CE</sub> = 5V	2N4030	25	-	-			
			2N4031						
			2N4032						
			2N4033						
		-I <sub>C</sub> = 1 A , -V <sub>CE</sub> = 5 V	2N4030	15	-	-			
			2N4031						
			2N4032						
			2N4033						
-I <sub>C</sub> = 100 mA , -V <sub>CE</sub> = 5V T <sub>amb</sub> = -55°C	2N4030	15	-	-					
	2N4031								
	2N4032								
	2N4033								

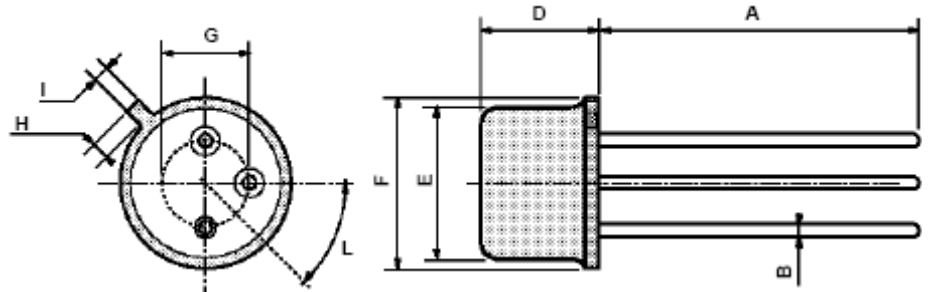
## PNP 2N4030 – 2N4031 – 2N4032 – 2N4033

Symbol	Ratings	Test Condition(s)	Min	Typ	Mix	Unit	
$f_T$	Transition Frequency	$-I_C = 50 \text{ mA}$ , $-V_{CE} = 10 \text{ V}$ $f = 100 \text{ MHz}$	2N4030	100	-	400	MHz
			2N4031				
			2N4032	150	-	500	
			2N4033				
$C_{EBO}$	Emitter – base Capacitance	$I_C = 0$ ; $-V_{EB} = 0.5 \text{ V}$ $f = 1 \text{ MHz}$	-	-	110	pF	
$C_{CBO}$	Collector – base Capacitance	$I_E = 0$ ; $-V_{CB} = 10 \text{ V}$ $f = 1 \text{ MHz}$	-	-	20	pF	
$t_s$	Storage times	$-I_C = 500 \text{ Ma}$ ; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$	-	-	350	ns	
$t_f$	Fall times	$-I_C = 500 \text{ Ma}$ ; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$	-	-	50	ns	
$t_{on}$	Turn-on times	$-I_C = 500 \text{ Ma}$ ; $-V_{CC} = 30 \text{ V}$ $-I_{B1} = -I_{B1} = 50 \text{ mA}$	-	-	100	ns	

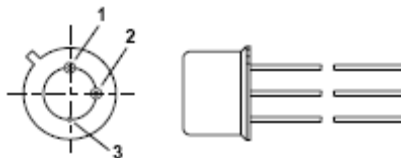
(\*) Pulsed : pulse duration = 300 $\mu$ s, duty cycle = 1%

### MECHANICAL DATA CASE TO-39

DIMENSIONS (mm)			
	min	typ	max
A	12.7	-	-
B	-	-	0.49
D	-	-	6.6
E	-	-	8.5
F	-	-	9.4
G	5.08	-	-
H	-	-	1.2
I	-	-	0.9
L	45°	-	-



Pin 1 :	Emitter
Pin 2 :	Base
Case :	Collector



Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.

Data are subject to change without notice.