



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	W
		@ $T_{amb} = < 25^\circ$	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	Max	Unit		
$-I_{CBO}$	Collector Cutoff Current	$I_E = 0, V_{CB} = 50\text{ V}$	2N4030	-	-	50	nA	
		$I_E = 0, V_{CB} = 60\text{ V}$	2N4031	-	-	-	-	
		$I_E = 0 ; V_{T_{amb}} = 150^\circ\text{C}$	$V_{CB} = 50\text{ V}$	2N4030	-	-	50	μA
			$V_{CB} = 60\text{ V}$	2N4031	-	-	-	-
		$I_E = 0, V_{CB} = 50\text{ V}$	2N4032	-	-	50	nA	
		$I_E = 0, V_{CB} = 60\text{ V}$	2N4033	-	-	-	-	
		$I_E = 0 ; V_{T_{amb}} = 150^\circ\text{C}$	$V_{CB} = 50\text{ V}$	2N4032	-	-	50	μA
$V_{CB} = 60\text{ V}$	2N4033		-	-	-	-		
$-V_{CBO}$	Collector – Base Breakdown Voltage	$-I_C = 10\ \mu\text{A}$ $I_E = 0$	2N4030	60	-	-	V	
			2N4031	80	-	-		
			2N4032	60	-	-		
			2N4033	80	-	-		
$-V_{CE0} (*)$	Collector – Emitter Breakdown Voltage	$-I_C = 10\ \text{mA}$ $I_B = 0$	2N4030	60	-	-	V	
			2N4031	80	-	-		
			2N4032	60	-	-		
			2N4033	80	-	-		
$-V_{EBO}$	Emitter – Base Breakdown Voltage	$-I_E = 10\ \mu\text{A}$ $I_C = 0$	2N4030	5	-	-	V	
			2N4031					
			2N4032					
			2N4033					
$-V_{CE(SAT)} (*)$	Collector-Emitter Saturation Voltage	$-I_C = 150\ \text{mA}, -I_B = 15\ \text{mA}$	-	-	0.15	V		
		$-I_C = 500\ \text{mA}, -I_B = 50\ \text{mA}$	-	-	0.5			
		$-I_C = 1\ \text{A}, -I_B = 100\ \text{mA}$	2N4030	-	-		1	
			2N4032	-	-		-	
$-V_{BE} (*)$	Base-Emitter Saturation Voltage	$-I_C = 150\ \text{mA}, -I_B = 15\ \text{mA}$	-	-	0.9	V		
		$-I_C = 500\ \text{mA}, -I_B = 50\ \text{mA}$	-	-	1.1			
		$-I_C = 1\ \text{A}, -I_B = 100\ \text{mA}$	2N4030	-	-		1.2	
			2N4032	-	-		-	

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

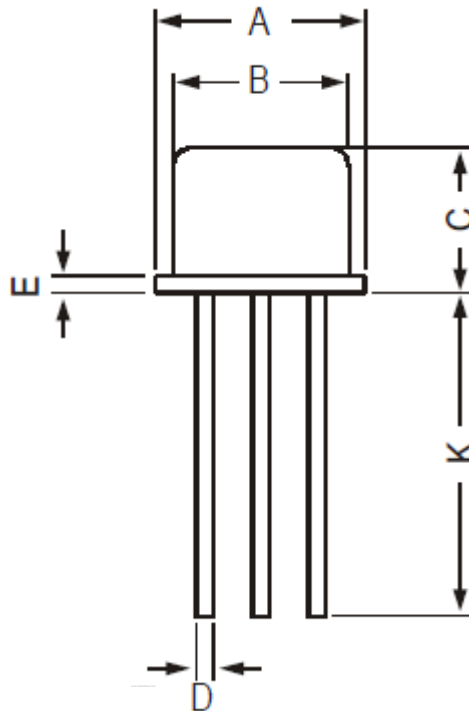
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
h_{FE} (*)	DC Current Gain	$-I_C = 100 \mu\text{A}, -V_{CE} = 5 \text{ V}$	2N4030	30	-	-
			2N4031			
			2N4032			
			2N4033			
		$-I_C = 100 \text{ mA}, -V_{CE} = 5 \text{ V}$	2N4030	40	-	120
			2N4031			
			2N4032			
			2N4033			
		$-I_C = 500 \text{ mA}, -V_{CE} = 5 \text{ V}$	2N4030	25	-	-
			2N4031			
			2N4032			
			2N4033			
		$-I_C = 1 \text{ A}, -V_{CE} = 5 \text{ V}$	2N4030	15	-	-
			2N4031			
			2N4032			
			2N4033			
$-I_C = 100 \text{ mA}, -V_{CE} = 5 \text{ V}$ $T_{\text{amb}} = -55^\circ\text{C}$	2N4030	15	-	-		
	2N4031					
	2N4032					
	2N4033					
f_T	Transition Frequency	$-I_C = 50 \text{ mA}, -V_{CE} = 10 \text{ V}$ $f = 100 \text{ MHz}$	2N4030	100	-	400
			2N4031			
			2N4032			
			2N4033			
C_{EBO}	Emitter – base Capacitance	$I_C = 0, -V_{EB} = 0.5 \text{ V}$ $f = 1 \text{ MHz}$	-	-	110	pF
C_{CB0}	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 = 300μs, duty cycle = 1%

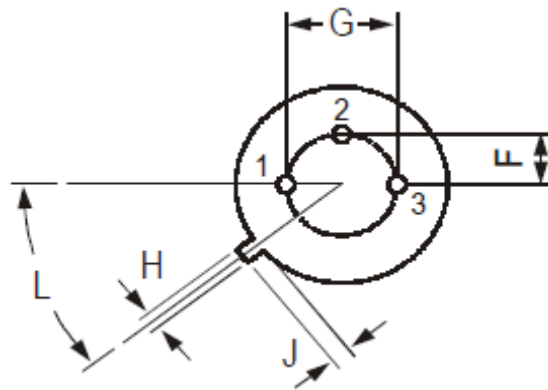
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MECHANICAL DATA CASE TO-39

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



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