



# 2N4030 THROUGH 2N4033

PNP SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES

CASE TO-39

THE 2N4030 THROUGH 2N4033 ARE PNP SILICON PLANAR EPITAXIAL TRANSISTORS FOR AF MEDIUM POWER DRIVERS AND OUTPUTS, AS WELL AS FOR SWITCHING APPLICATIONS UP TO 1 AMPERE. THE 2N4030, 2N4031, 2N4032, 2N4033 ARE COMPLEMENTARY TO THE NPN 2N3108, 2N3020, 2N3107, 2N3019 RESPECTIVELY.



C E B

### ABSOLUTE MAXIMUM RATINGS

		2N4030 2N4032	2N4031 2N4033
Collector-Base Voltage	-V <sub>CB0</sub>	60V	80V
Collector-Emitter Voltage	-V <sub>CEO</sub>	60V	80V
Emitter-Base Voltage	-V <sub>EB0</sub>	5V	5V
Collector Current	-I <sub>C</sub>		1A
Total Power Dissipation (T <sub>C</sub> ≤ 25°C)	P <sub>tot</sub>		4W
(T <sub>A</sub> ≤ 25°C)			800mW
Operating Junction & Storage Temperature	T <sub>j</sub> , T <sub>stg</sub>	-65 to 200°C	

### ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage 2N4030, 2N4032	-V <sub>CB0</sub>	60		V	-I <sub>C</sub> =0.01mA I <sub>E</sub> =0
2N4031, 2N4033		80		V	
Collector-Emitter Breakdown Voltage	-V <sub>CEO</sub> *				-I <sub>C</sub> =10mA I <sub>B</sub> =0
2N4030, 2N4032		60		V	
2N4031, 2N4033		80		V	
Emitter-Base Breakdown Voltage	-V <sub>EB0</sub>	5		V	-I <sub>E</sub> =0.01mA I <sub>C</sub> =0
Collector Cutoff Current	-I <sub>CB0</sub>				
2N4030, 2N4032			50	nA	-V <sub>CB</sub> =50V I <sub>E</sub> =0
2N4031, 2N4033			50	nA	-V <sub>CB</sub> =60V I <sub>E</sub> =0
Collector Cutoff Current	-I <sub>CB0</sub>				
2N4030, 2N4032			50	μA	-V <sub>CB</sub> =50V I <sub>E</sub> =0 T <sub>A</sub> =150°C
2N4031, 2N4033			50	μA	-V <sub>CB</sub> =60V I <sub>E</sub> =0 T <sub>A</sub> =150°C
Collector-Emitter Saturation Voltage	-V <sub>CE(sat)</sub> *	0.15		V	-I <sub>C</sub> =150mA -I <sub>B</sub> =15mA
		0.5		V	-I <sub>C</sub> =500mA -I <sub>B</sub> =50mA
2N4030, 2N4032 only	-V <sub>CE(sat)</sub> *	1.0		V	-I <sub>C</sub> =1A -I <sub>B</sub> =0.1A
Base-Emitter Saturation Voltage	-V <sub>BE(sat)</sub> *	0.9		V	-I <sub>C</sub> =150mA -I <sub>B</sub> =15mA
Base-Emitter Voltage	-V <sub>BE</sub> *	1.1		V	-I <sub>C</sub> =500mA -V <sub>CE</sub> =0.5V
2N4030, 2N4032 only		1.2		V	-I <sub>C</sub> =1A -V <sub>CE</sub> =1V

**MICRO ELECTRONICS LTD.**

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PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
D.C. Current Gain 2N4030, 2N4031 only	HFE *	30	120		-I <sub>C</sub> =0.1mA -V <sub>CE</sub> =5V -I <sub>C</sub> =100mA -V <sub>CE</sub> =5V -I <sub>C</sub> =500mA -V <sub>CE</sub> =5V
D.C. Current Gain 2N4032, 2N4033 only	HFE *	75	300		-I <sub>C</sub> =0.1mA -V <sub>CE</sub> =5V -I <sub>C</sub> =100mA -V <sub>CE</sub> =5V -I <sub>C</sub> =500mA -V <sub>CE</sub> =5V
D.C. Current Gain 2N4030 2N4031 2N4032 2N4033	HFE *	15	10		-I <sub>C</sub> =1A -V <sub>CE</sub> =5V
D.C. Current Gain 2N4030, 2N4031 2N4032, 2N4033	HFE *	15	40		-I <sub>C</sub> =100mA -V <sub>CE</sub> =5V T <sub>A</sub> =-55°C
Current Gain-Bandwidth Product 2N4030, 2N4031 2N4032, 2N4033	f <sub>T</sub>	100	400	MHz	-I <sub>C</sub> =50mA -V <sub>CE</sub> =10V
Collector-Base Capacitance	C <sub>ob</sub>		20	pF	-V <sub>CB</sub> =10V I <sub>B</sub> =0 f=1MHz
Emitter-Base Capacitance	C <sub>ib</sub>		110	pF	-V <sub>EB</sub> =0.5V I <sub>C</sub> =0 f=1MHz
Turn-On Time	t <sub>on</sub>		100	nS	-I <sub>C</sub> =500mA -I <sub>B1</sub> =50mA
Storage Time	t <sub>s</sub>		350	nS	-I <sub>C</sub> =500mA -I <sub>B1</sub> =I <sub>B2</sub> =50mA
Fall Time	t <sub>f</sub>		50	nS	-I <sub>C</sub> =500mA -I <sub>B1</sub> =I <sub>B2</sub> =50mA

\* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

