

**2N5400**  
**2N5550**

**2N5401**  
**2N5551**

COMPLEMENTARY SILICON GENERAL PURPOSE HIGH VOLTAGE TRANSISTORS

THE 2N5400, 2N5401 (PNP) AND 2N5550, 2N5551 (NPN) ARE COMPLEMENTARY SILICON PLANAR EPITAXIAL TRANSISTORS INTENDED FOR GENERAL PURPOSE HIGH VOLTAGE AMPLIFIER AND SWITCHING APPLICATIONS.

CASE TO-92A



EBC

ABSOLUTE MAXIMUM RATINGS	For p-n-p devices, voltage and current values are negative.	(PNP)	(PNP)	(NPN)	(NPN)
		2N5400	2N5401	2N5550	2N5551
Collector-Base Voltage	V <sub>CB0</sub>	130V	160V	160V	180V
Collector-Emitter Voltage	V <sub>CEO</sub>	120V	150V	140V	160V
Emitter-Base Voltage	V <sub>EBO</sub>	5V	5V	6V	6V
Collector Current	I <sub>C</sub>	600mA			
Total Power Dissipation (T <sub>C</sub> ≤ 25°C)	P <sub>tot</sub>	1W			
		derate 8mW/°C above 25°C			
		350mW			
		derate 2.8mW/°C above 25°C			
Operating Junction & Storage Temperature	T <sub>j</sub> , T <sub>stg</sub>	-55 to 150°C			

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

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BV <sub>CB0</sub>	↑			I <sub>C</sub> =0.1mA I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	LV <sub>CEO</sub>	Note 1			I <sub>C</sub> =1mA I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	↓			I <sub>E</sub> =0.01mA I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CB0</sub>		100	nA	V <sub>CB</sub> =100V I <sub>E</sub> =0
2N5400, 5550			50	nA	V <sub>CB</sub> =120V I <sub>E</sub> =0
Collector Cutoff Current	I <sub>CB0</sub>		100	μA	V <sub>CB</sub> =100V I <sub>E</sub> =0
2N5400, 5550			50	μA	T <sub>A</sub> =100°C V <sub>CB</sub> =120V I <sub>E</sub> =0
2N5401, 5551					T <sub>A</sub> =100°C
Emitter Cutoff Current	I <sub>EBO</sub>		50	nA	V <sub>EB</sub> =3V I <sub>C</sub> =0
2N5400, 5401			50	nA	V <sub>EB</sub> =4V I <sub>C</sub> =0
2N5550, 5551					
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		0.2	V	I <sub>C</sub> =10mA I <sub>B</sub> =1mA
2N5400, 5401			0.15	V	I <sub>C</sub> =10mA I <sub>B</sub> =1mA
2N5550, 5551					

Note 1 : Equal to the values of absolute maximum ratings.

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PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Emitter Saturation Voltage 2N5400, 5401 2N5550 2N5551	V <sub>CE(sat)</sub>			0.5 0.25 0.2	V V V	I <sub>C</sub> =50mA I <sub>B</sub> =5mA I <sub>C</sub> =50mA I <sub>B</sub> =5mA I <sub>C</sub> =50mA I <sub>B</sub> =5mA
Base-Emitter Saturation Voltage All types 2N5400, 5401 2N5550 2N5551	V <sub>BE(sat)</sub>			1 1 1.2 1	V V V V	I <sub>C</sub> =10mA I <sub>B</sub> =1mA I <sub>C</sub> =50mA I <sub>B</sub> =5mA I <sub>C</sub> =50mA I <sub>B</sub> =5mA I <sub>C</sub> =50mA I <sub>B</sub> =5mA
Current Gain-Bandwidth Product 2N5400 2N5401, 5550, 5551	f <sub>T</sub>	100 100	160 160	400 300	MHz MHz	I <sub>C</sub> =10mA V <sub>CE</sub> =10V I <sub>C</sub> =10mA V <sub>CE</sub> =10V
Collector-Base Capacitance	C <sub>ob</sub>		4	6	pF	V <sub>CB</sub> =10V I <sub>E</sub> =0 f=1MHz
Emitter-Base Capacitance 2N5550 only 2N5551 only	C <sub>ib</sub>			30 20	pF pF	V <sub>EB</sub> =0.5V I <sub>C</sub> =0 f=1MHz
Noise Figure 2N5400, 5401, 5551 only 2N5550 only	NF			8 10	dB dB	I <sub>C</sub> =250μA V <sub>CE</sub> =5V R <sub>G</sub> =1kΩ f=10Hz-15KHz

D.C. AND SMALL SIGNAL CURRENT GAIN AT TA=25°C

TYPE	H <sub>FE</sub>						I <sub>C</sub> =1mA h <sub>fe</sub> @ V <sub>CE</sub> =10V f=1kHz	
	@ I <sub>C</sub> =1mA V <sub>CE</sub> =5V		@ I <sub>C</sub> =10mA V <sub>CE</sub> =5V		@ I <sub>C</sub> =50mA V <sub>CE</sub> =5V		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
2N5400	30		40	180	40		30	200
2N5401	50		60	240	50		40	200
2N5550	60		60	250	20		50	200
2N5551	80		80	250	30		50	200

