


**2N5679**  
**2N5680**  
PNP SILICON  
**2N5681**  
**2N5682**  
NPN SILICON

CASE  
TO-5



**GENERAL PURPOSE  
TRANSISTOR**

**MAXIMUM RATINGS**

Rating	Symbol	2N5679 2N5681	2N5680 2N5682	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	100	120	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	100	120	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	4.0		Vdc
Base Current	I <sub>B</sub>	0.5		Adc
Collector Current — Continuous	I <sub>C</sub>	1.0		Adc
Total Device Dissipation @ T <sub>A</sub> = 25°C	P <sub>D</sub>	1.0	1.0	Watt
Derate above 25°C		5.7	5.7	mW/°C
Total Device Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	10	10	Watts
Derate above 25°C		57	57	mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +200		°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	17.5	°C/W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	175	°C/W

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

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Sustaining Voltage (I <sub>C</sub> = 10 mA <sub>dc</sub> , I <sub>B</sub> = 0)	V <sub>CEO(sus)</sub>	100 120	— —	Vdc
Collector Cutoff Current (V <sub>CE</sub> = 70 Vdc, I <sub>B</sub> = 0) (V <sub>CE</sub> = 80 Vdc, I <sub>B</sub> = 0)	I <sub>CEO</sub>	— —	10 10	μAdc
Collector Cutoff Current (V <sub>CE</sub> = 100 Vdc, V <sub>EB</sub> = 1.5 Vdc) (V <sub>CE</sub> = 120 Vdc, V <sub>EB</sub> = 1.5 Vdc)	I <sub>CEX</sub>	— —	1.0 1.0	μAdc mA <sub>dc</sub>
(V <sub>CE</sub> = 100 Vdc, V <sub>EB</sub> = 1.5 Vdc, T <sub>C</sub> = 150°C) (V <sub>CE</sub> = 120 Vdc, V <sub>EB</sub> = 1.5 Vdc, T <sub>C</sub> = 150°C)		— —	1.0 1.0	
Collector Cutoff Current (V <sub>CB</sub> = 100 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 120 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	— —	1.0 1.0	μAdc
Emitter Cutoff Current (V <sub>EB</sub> = 4.0 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	—	1.0	μAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain (I <sub>C</sub> = 250 mA <sub>dc</sub> , V <sub>CE</sub> = 2.0 Vdc) (I <sub>C</sub> = 1.0 Adc, V <sub>CE</sub> = 2.0 Vdc)	h <sub>FE</sub>	40 5.0	150 —	—
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 250 mA <sub>dc</sub> , I <sub>B</sub> = 25 mA <sub>dc</sub> ) (I <sub>C</sub> = 500 mA <sub>dc</sub> , I <sub>B</sub> = 50 mA <sub>dc</sub> ) (I <sub>C</sub> = 1.0 Adc, I <sub>B</sub> = 200 mA <sub>dc</sub> )	V <sub>CE(sat)</sub>	— — —	0.6 1.0 2.0	Vdc
Base-Emitter Saturation Voltage (I <sub>C</sub> = 250 mA <sub>dc</sub> , V <sub>CE</sub> = 2.0 Vdc)	V <sub>BE(sat)</sub>	—	1.0	Vdc
<b>SMALL-SIGNAL CHARACTERISTICS</b>				
Current-Gain — Bandwidth Product (I <sub>C</sub> = 100 mA <sub>dc</sub> , V <sub>CE</sub> = 10 Vdc, f = 10 MHz)	f <sub>T</sub>	30	—	—
Output Capacitance (V <sub>CB</sub> = 20 Vdc, I <sub>E</sub> = 0, f = 1.0 MHz)	C <sub>obo</sub>	—	50	pF
Small-Signal Current Gain (I <sub>C</sub> = 0.2 Adc, V <sub>CE</sub> = 1.5 Vdc, f = 1.0 kHz)	h <sub>fe</sub>	40	—	—

