

SILICON NPN TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR

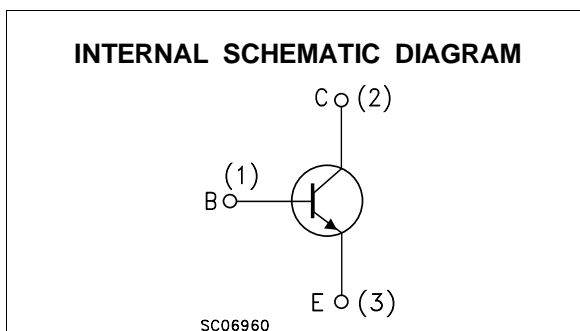
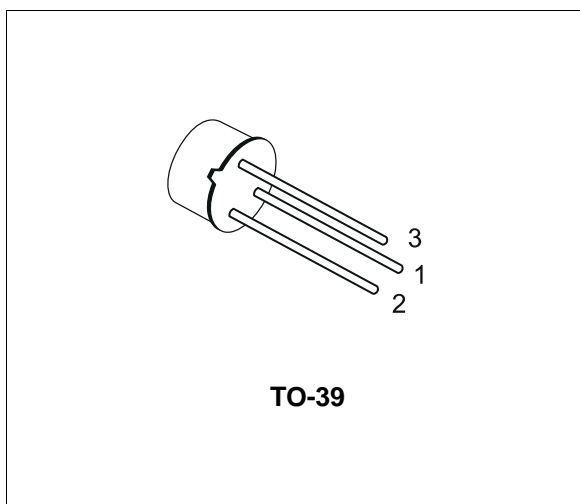
APPLICATIONS

- GENERAL PURPOSE SWITCHING
- GENERAL PURPOSE AMPLIFIERS

DESCRIPTION

The 2N5681, 2N5682 are high voltage silicon epitaxial planar NPN transistors in Jedec TO-39 metal case intended for use as drivers for high power transistors in general purpose, amplifier and switching applications.

The complementary PNP types are the 2N5679 and 2N5680 respectively.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		2N5680	2N5682	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	100	120	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	100	120	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	4		V
I_C	Collector Current	1		A
I_B	Base Current	0.5		A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ\text{C}$	10		W
P_{tot}	Total Dissipation at $T_{amb} \leq 50^\circ\text{C}$	1		W
T_{stg}	Storage Temperature	-65 to 200		$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	200		$^\circ\text{C}$

2N5681 / 2N5682

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	17.5	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}C/W$

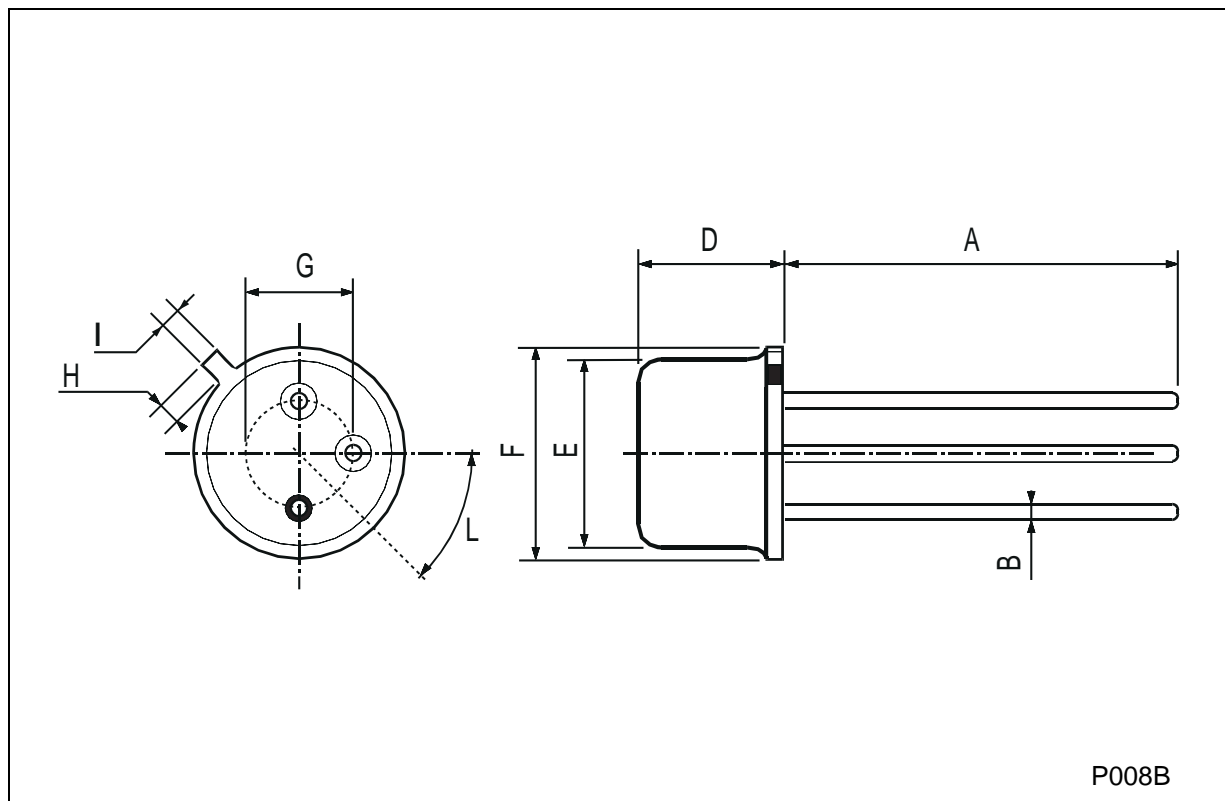
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector Cut-off Current ($V_{BE} = -1.5V$)	for 2N5681 $V_{CE} = 100 V$ for 2N5682 $V_{CE} = 120 V$ $T_c = 150^{\circ}C$ for 2N5681 $V_{CE} = 100 V$ for 2N5682 $V_{CE} = 120 V$			1 1 1 1	μA μA μA μA
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	for 2N5681 $V_{CB} = 100 V$ for 2N5682 $V_{CB} = 120 V$			1 1	μA μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	for 2N5681 $V_{CB} = 70 V$ for 2N5682 $V_{CB} = 80 V$			10 10	μA μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 4 V$			1	μA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 10 mA$ for 2N5681 for 2N5682	100 120			V V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 250 mA$ $I_B = 25 mA$ $I_C = 500 mA$ $I_B = 50 mA$ $I_C = 1 A$ $I_B = 200 mA$			0.6 1 2	V V V
V_{BE*}	Base-Emitter Voltage	$I_C = 250 mA$ $V_{CE} = 2 V$			1	V
h_{FE*}	DC Current Gain	$I_C = 250 mA$ $V_{CE} = 2 V$ $I_C = 1 A$ $V_{CE} = 2 V$	40 5		150	
h_{fe}	Small Signal Current Gain	$I_C = 0.2 A$ $V_{CE} = 1.5 V$ $f = 1KHz$	40			
f_T	Transition frequency	$I_C = 100 mA$ $V_{CE} = 10 V$ $f = 10MHz$	30			MHz
C_{CBO}	Collector Base Capacitance	$I_E = 0$ $V_{CB} = 20 V$ $f = 1MHz$			50	pF

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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