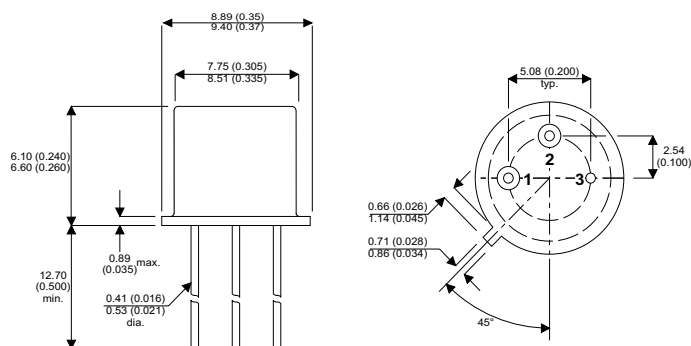


MECHANICAL DATA

Dimensions in mm (inches)

**NPN SILICON
TRANSISTORS**



DESCRIPTION

The 2N5681 and 2N5682 are 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 circuits

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

TO-39

Pin 1 – Emitter Pin 2 – Base Pin 3 – Collector

ABSOLUTE MAXIMUM RATINGS

$T_{CASE} = 25^{\circ}C$ unless otherwise stated

		2N5681	2N5682
V_{CBO}	Collector – Base Voltage ($I_E = 0$)	100V	120V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	100V	120V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)		4V
I_C	Continuous Collector Current		1A
I_B	Base Current		0.5A
P_{tot}	Total Dissipation at $T_{case} \leq 25^{\circ}C$		10W
	$T_{amb} \leq 25^{\circ}C$		1W
T_{stg}	Operating and Storage Temperature Range		-65 to +200°C
T_j	Junction temperature		200°C

THERMAL DATA

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

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

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

* Pulse test $t_p = 300\mu s$, $\delta < 2\%$