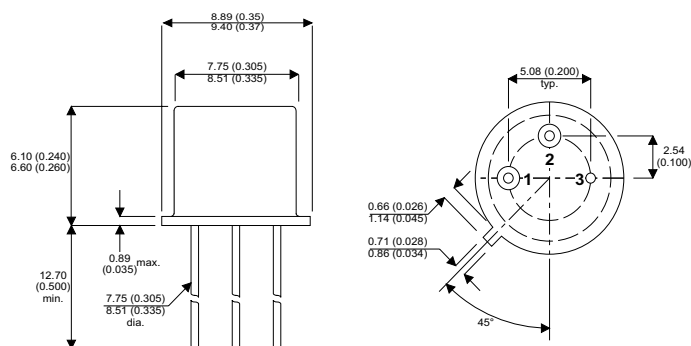


**MECHANICAL DATA**

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	$\mu A$
$I_{CEV}$ Collector Cut Off Current	$V_{BE} = -1.5$ for 2N5681 $V_{CE} = 100V$ for 2N5682 $V_{CE} = 120V$			1	$\mu A$
	$T_{case} = 150^{\circ}C$ 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	$\mu A$
$I_{EBO}$ Emitter Cut Off Current	$I_C = 0$ $V_{EB} = 4V$			10	
$V_{CEO(sus)*}$ 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	
$V_{BE*}$ Base Emitter Voltage	$I_C = 1A$ $I_B = 200mA$			2	
	$I_C = 250mA$ $V_{CE} = 2V$			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  $t_p = 300\mu s$ ,  $\delta < 2\%$