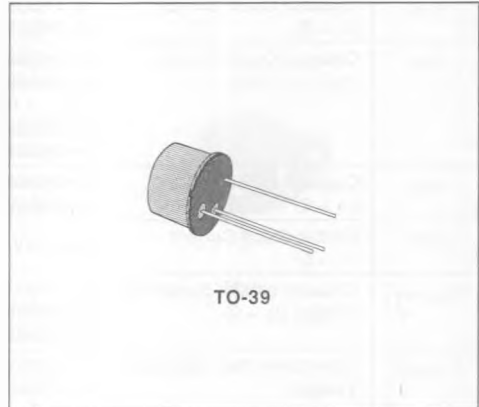


GENERAL PURPOSE TRANSISTORS

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.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N5681	2N5682	Unit
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 Power Dissipation at $T_{case} \leq 25^\circ\text{C}$ $T_{amb} \leq 25^\circ\text{C}$	10	1	W
T_{stg}	Storage Temperature	- 65 to 200		$^\circ\text{C}$
T_j	Junction Temperature	200		$^\circ\text{C}$

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	17.5	$^{\circ}C/W$
$R_{th\ j-amb}$	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_{CBO}	Collector Cutoff Current ($I_E = 0$)	for 2N5681 $V_{CB} = 100V$ for 2N5682 $V_{CB} = 120V$			1	μA
I_{CEV}	Collector Cutoff Current ($V_{BE} = -1.5V$)	for 2N5681 $V_{CE} = 100V$ for 2N5682 $V_{CE} = 120V$ $T_{case} = 150^{\circ}C$ for 2N5681 $V_{CE} = 100V$ for 2N5682 $V_{CE} = 120V$			1	μA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for 2N5681 $V_{CE} = 70V$ for 2N5682 $V_{CE} = 80V$			10	μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 4V$			1	μA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 10mA$ for 2N5681 for 2N5682	100 120			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 250mA$ $I_B = 25mA$ $I_C = 500mA$ $I_B = 50mA$ $I_C = 1A$ $I_B = 200mA$			0.6 1 2	V
V_{BE}^*	Base-emitter Voltage	$I_C = 250mA$ $V_{CE} = 2V$			1	V
h_{FE}^*	DC Current Gain	$I_C = 250mA$ $V_{CE} = 2V$ $I_C = 1A$ $V_{CE} = 2V$	40 5		150	
f_T	Transistion Frequency	$I_C = 100mA$ $f = 10MHz$ $V_{CE} = 10V$	30			MHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $f = 1MHz$ $V_{CB} = 20V$			50	pF
h_{Ie}	Small Signal Curent Gain	$I_C = 0.2A$ $f = 1KHz$ $V_{CE} = 1.5V$	40			

* Pulsed : pulse duration = 300 μs , duty cycle $\leq 2\%$