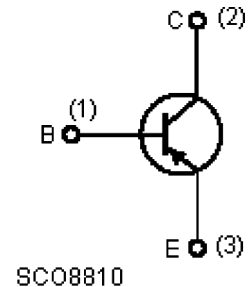


Internal Schematic Diagram



## Description:

The 2N5680 are high voltage silicon epitaxial planar PNP transistors in JEDEC TO-39 metal case intended for use as drivers for high power transistors in general purpose, amplifier and switching circuit.

## Feature:

- NPN transistors

## Applications

- General Purpose Switching
- General Purpose Amplifiers

## Absolute Maximum Ratings

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

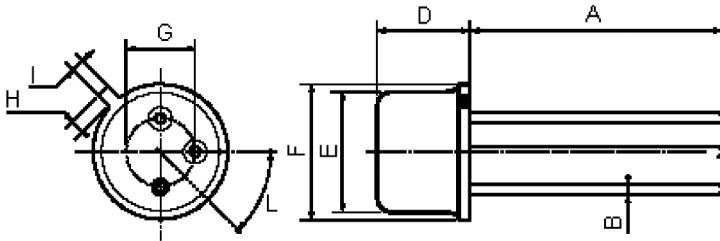
## Thermal Data

Parameter	Symbol	Value	Unit
Maximum Thermal Resistance Junction-case	$R_{thj-case}$	17.5	°C/W
Maximum Thermal Resistance Junction-ambient	$R_{thj-a}$	175	

## Electrical Characteristics ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector Cut-off Current ( $V_{BE} = -1.5\text{V}$ )	<b>2N5680</b> $V_{CE} = -120\text{V}$ $T_C = 150^\circ\text{C}$ <b>2N5680</b> $V_{CE} = -120\text{V}$	$I_{CEV}$	-	-	-1 -1	$\mu\text{A}$
Collector Cut-off Current ( $I_E = 0$ )	<b>2N5680</b> $V_{CB} = -120\text{V}$	$I_{CBO}$	-	-	-1	
Collector Cut-off Current ( $I_B = 0$ )	<b>2N5680</b> $V_{CB} = -80\text{V}$	$I_{CEO}$			-10	
Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = -4\text{V}$	$I_{EBO}$	-	-	-1	
Collector-Emitter Sustaining Voltage	<b>2N5680</b> $I_C = -10\text{mA}$	$V_{CE0}^*$ (sus)	-120	-	-	V
Collector-Emitter Saturation Voltage	$I_C = -250\text{mA}$ $I_B = -25\text{mA}$ $I_C = -500\text{mA}$ $I_B = -50\text{mA}$ $I_C = -1\text{mA}$ $I_B = -200\text{mA}$	$V_{CE(sat)}^*$	-	-	-0.6 -1 -2	
Base-Emitter Voltage	$I_C = -250\text{mA}$ $V_{CE} = -2\text{V}$	$V_{BE}^*$	-	-	-1	
DC Current Gain	$I_C = -250\text{mA}$ $V_{CE} = -2\text{V}$ $I_C = -1\text{A}$ $V_{CE} = -2\text{V}$	$h_{FE}^*$	40 5	-	150	-
Small Signal Current Gain	$I_C = -0.2\text{A}$ $V_{CE} = -1.5\text{V}$ $f = 1\text{kHz}$	$h_{fe}$	40	-	-	-
Transition frequency	$I_C = -100\text{mA}$ $V_{CE} = -10\text{V}$ $f = 10\text{MHz}$	$f_T$	30	-	-	MHz
Collector Base Capacitance	$I_E = 0$ $V_{CB} = -20\text{V}$ $f = 1\text{MHz}$	$C_{CBO}$	-	-	50	pF

\*Pulsed: Pulse Duration = 300ms, Duty Cycle 1.5%.



## TO-39 Mechanical Data

Dimension	mm			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	12.7	-	-	0.5	-	-
B	-	-	0.49	-	-	0.019
D	-	-	6.6	-	-	0.26
E	-	-	8.5	-	-	0.334
F	-	-	9.4	-	-	0.37
G	5.08	-	-	0.2	-	-
H	-	-	1.2	-	-	0.047
I	-	-	0.9	-	-	0.035
L	45° (Typical)					

## Part Number Table

Description	Part Number
Transistor	2N5680

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