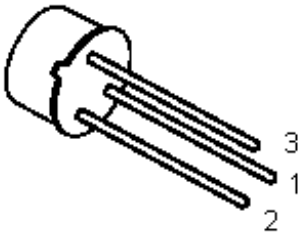
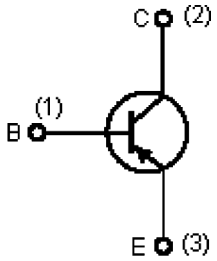
Transistor

TO-39



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 ≤25°C	P_{tot}	10	W
Total Dissipation at T_a ≤50°C		1	
Storage Temperature	T_{stg}	-65 to 200	°C
Maximum Operating Junction Temperature	T_j	200	

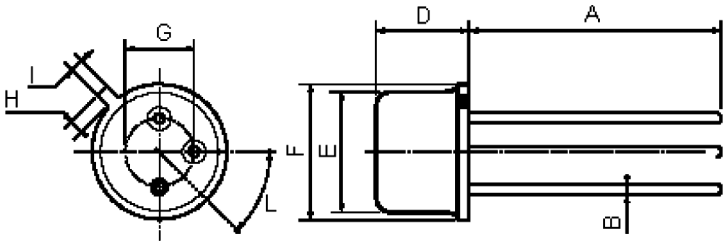
Thermal Data

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

Electrical Characteristics (T_C = 25°C unless otherwise noted)

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