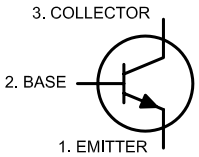
NPN Silicon Planar Transistor
80V_{CEO}, 500mA I_C

multicomp PRO

TO-39

RoHS Compliant

NPN



Absolute Maximum Ratings (T_A = 25°C unless specified otherwise)

Description	Symbol	Value	Units
Collector Emitter Voltage	V_{CEO}	80	V
Collector Emitter Voltage	V_{CER}	100	
Collector Base Voltage	V_{CBO}	120	
Emitter Base Voltage	V_{EBO}	7	
Collector Current Continuous	I_C	0.5	A
Total Device Dissipation @ T_A=25°C Derate Above 25°C	P_D	0.8 4.57	W mW/°C
Total Device Dissipation@ T_C=25°C Derate Above 25°C	P_D	3 17.2	W mW/°C
Operating And Storage Junction Temperature Range	Tj, Tstg	-65 to +200	°C
Thermal Resistance Junction to Ambient Junction to Case	 $R_{th(j-a)}$ $R_{th(j-c)}$	 219 58.3	 °C/W °C/W

Electrical Characteristics: (T_A = +25°C Unless otherwise specified)

Description	Symbol	Test Conditions	Min	Max	unit
Collector Emitter Breakdown Voltage	BV_{CER}(sus)	I_C = 100mA, R_{BE} = 10Ω	100		V
Collector Emitter Sustaining Voltage	BV_{CEO}(sus)*	I_C = 10mA, I_B = 0	80		V
Collector Base Breakdown Voltage	BV_{CBO}	I_C = 100µA, I_E = 0	120		V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E = 100µA, I_C = 0	7		V
Collector Cutoff Current	I_{CBO}	V_{CB} = 90V, I_E = 0 V_{CB} = 90V, I_E = 0, T_A = 150°C		10 15	nA µA
Emitter Cutoff Current	I_{EBO}	V_{EB} =5V, I_C = 0		10	nA
DC Current Gain	h_{FE}*	I_C = 1mA, V_{CE} = 10V I_C = 10mA, V_{CE} =10V I_C = 10mA, V_{CE} =10V T_C = -55ºC I_C = 150mA, V_{CE} = 10V	20 35 20 40	 120	
Collector Emitter (Sat) Voltage	$V_{CE(Sat)}$	I_C = 50mA, I_B = 5mA I_C = 150mA, I_B = 15mA		1.2 5	V
Base Emitter (Sat) Voltage	$V_{BE(Sat)}$	I_C = 50mA, I_B = 5mA I_C = 150mA, I_B = 15mA		0.9 1.3	V

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80VCEO, 500mA IC

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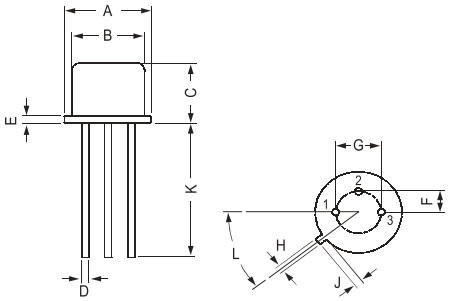
Small Signal Characteristics

Description	Symbol	Test Conditions	Min	Max	unit
Current Gain Bandwidth Product	f_T	I_C = 50mA, V_{CE} = 10V f = 20MHz	50		MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz		15	pF
Input Capacitance	C_{ib}	V_{EB} = 0.5V, I_C = 0, f = 1MHz		85	pF
Input Impedance	h_{ib}	I_C = 1mA, V_{CB} = 5V, f = 1kHz I_C = 5mA, V_{CB} = 10V, f = 1kHz	20 4	30 8	Ω
Voltage Feedback Ratio	h_{rb}	I_C = 1mA, V_{CB} = 5V, f = 1kHz I_C = 5mA, V_{CB} = 10V, f = 1kHz		1.25 1.5	$X10^{-4}$
Small Signal Current Gain	$\lvert h_{fe} \rvert$	I_C = 1mA, V_{CB} = 5V, f = 1kHz	30	100	
Output Admittance	h_{ob}	I_C = 1mA, V_{CB} = 5V, f = 1kHz I_C = 5mA, V_{CB} = 10V, f = 1kHz		0.5 0.5	µmho

TO-39 Metal Can Package



Dim.	Min.	Max.
A	8.5	9.39
B	7.74	8.5
C	6.09	6.6
D	0.4	0.53
E	-	0.88
F	2.41	2.66

Dim.	Min.	Max.
G	4.82	5.33
H	0.71	0.86
J	0.73	1.02
K	12.7	-
L	42 Deg.	48 Deg.

Dimensions : Millimetres

Part Number Table

Description	Part Number
NPN Silicon Planar Transistor, 80V, 500mA, TO-39	2N1893