

NPN Silicon Planar Transistor

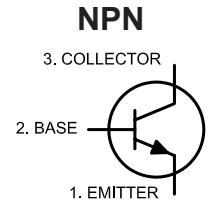
80V_{CEO}, 500mA I_c

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**RoHS
Compliant**



TO-39



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	T _j , T _{stg}	-65 to +200	°C
Thermal Resistance			
Junction to Ambient	R _{th(j-a)}	219	°C/W
Junction to Case	R _{th(j-c)}	58.3	°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 = -55°C 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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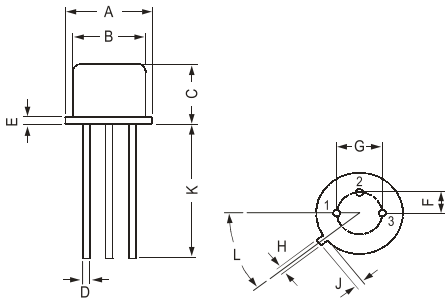
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Small Signal Characteristics

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	20	30	Ω
		I _C = 5mA, V _{CB} = 10V, f = 1kHz	4	8	
Voltage Feedback Ratio	h _{rb}	I _C = 1mA, V _{CB} = 5V, f = 1kHz		1.25	X10 ⁻⁴
		I _C = 5mA, V _{CB} = 10V, f = 1kHz		1.5	
Small Signal Current Gain	h _{fe}	I _C = 1mA, V _{CB} = 5V, f = 1kHz	30	100	
Output Admittance	h _{ob}	I _C = 1mA, V _{CB} = 5V, f = 1kHz		0.5	μmho
		I _C = 5mA, V _{CB} = 10V, f = 1kHz		0.5	

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

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