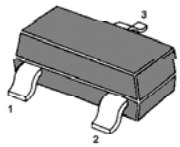
PNP Silicon Epitaxial Planar Transistor



1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

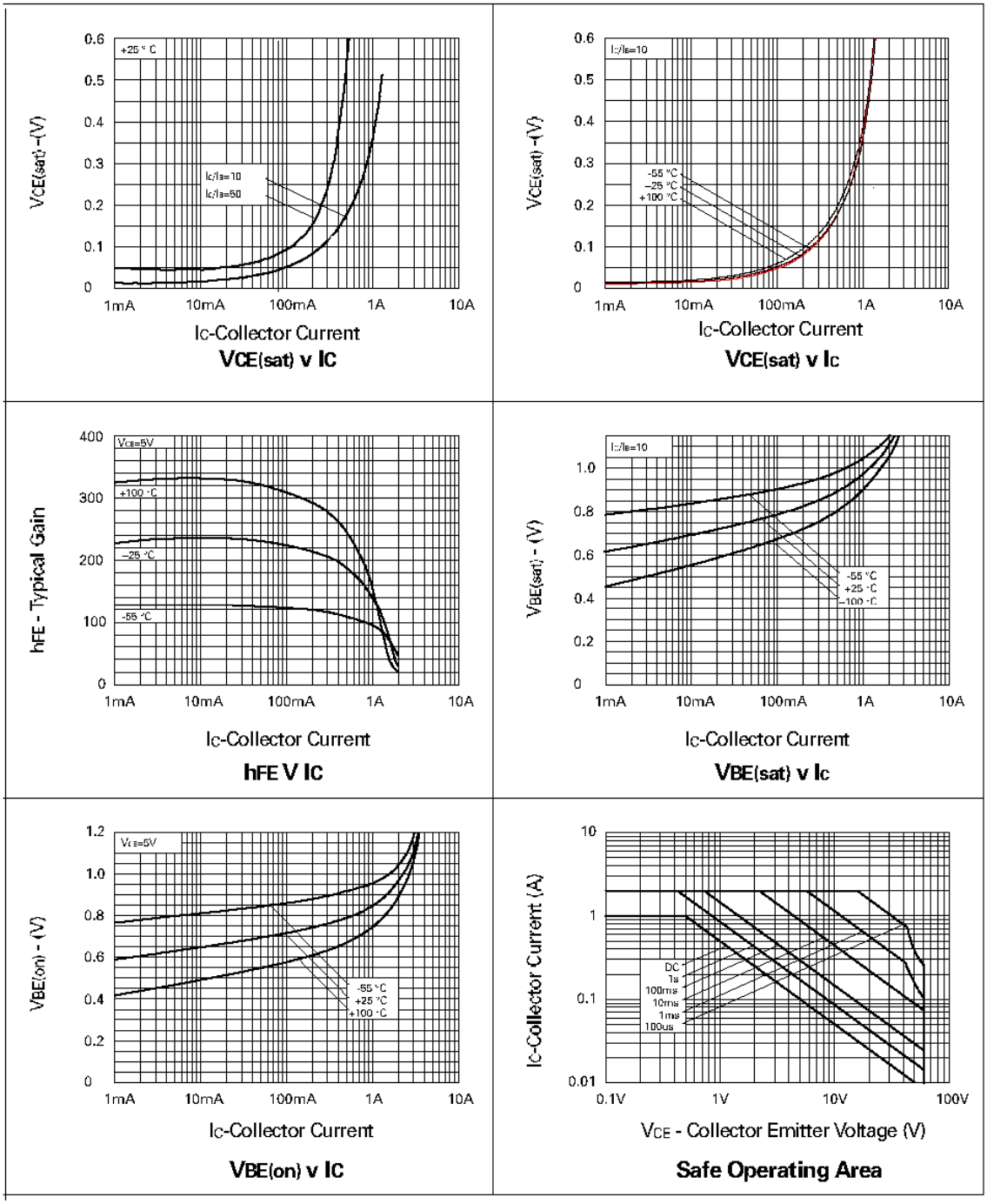
Marking:591A

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	1	A
Peak Pulse Current	$-I_{CM}$	2	A
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_S	- 65 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 5 V, $-I_C$ = 1 mA at $-V_{CE}$ = 5 V, $-I_C$ = 100 mA at $-V_{CE}$ = 5 V, $-I_C$ = 500 mA at $-V_{CE}$ = 5 V, $-I_C$ = 1 A	 h_{FE} h_{FE} h_{FE} h_{FE}	 300 300 250 160	 - 800 - -	 - - - -
Collector Cutoff Current at $-V_{CB}$ = 30 V	$-I_{CBO}$	-	0.1	µA
Collector Cutoff Current at $-V_{CE}$ = 30 V	$-I_{CEO}$	-	0.1	µA
Emitter Cutoff Current at $-V_{EB}$ = 5 V	$-I_{EBO}$	-	0.1	µA
Collector Emitter Saturation Voltage at $-I_C$ = 100 mA, $-I_B$ = 1 mA at $-I_C$ = 500 mA, $-I_B$ = 20 mA at $-I_C$ = 1 A, $-I_B$ = 100 mA	$-V_{CEsat}$	 - - -	 0.2 0.35 0.5	V
Base Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA	$-V_{BEsat}$	-	1.1	V
Base Emitter Voltage at $-I_C$ = 1 A, $-V_{CE}$ = 5 V	$-V_{BE}$	-	1	V
Collector Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz	C_C	-	12	pF
Gain Bandwidth Product at $-V_{CE}$ = 10 V, $-I_C$ = 50 mA, f = 100 MHz	f_T	150	-	MHz


+25 °C
Ic/Ib=10
Ic/Ib=50
VCE(sat) -(V)
0.6
0.5
0.4
0.3
0.2
0.1
0
1mA
10mA
100mA
1A
10A
Ic-Collector Current
VCE(sat) v IC
Ic/Ib=10
-55 °C
-25 °C
+100 °C
VCE(sat) -(V)
Ic-Collector Current
VCE(sat) v Ic
VCE=5V
+100 °C
-25 °C
-55 °C
hFE - Typical Gain
400
300
200
100
0
Ic-Collector Current
hFE V IC
Ic/Ib=10
-55 °C
+25 °C
+100 °C
VBE(sat) - (V)
1.0
0.8
0.6
0.4
0.2
0
Ic-Collector Current
VBE(sat) v Ic
VCE=5V
-55 °C
+25 °C
+100 °C
VBE(on) - (V)
1.2
1.0
0.8
0.6
0.4
0.2
0
Ic-Collector Current
VBE(on) v IC
DC
1s
100ms
10ms
1ms
100us
Ic-Collector Current (A)
10
1
0.1
0.01
0.1V
1V
10V
100V
VCE - Collector Emitter Voltage (V)
Safe Operating Area