TRR®

BSP43

NPN Silicon Epitaxial Planar Transistor

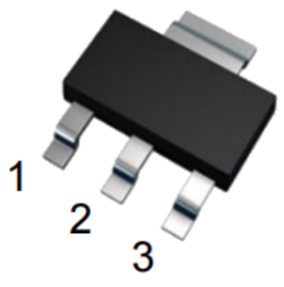
Features

- High Collector Current
- Low Collector-emitter Saturation Voltage

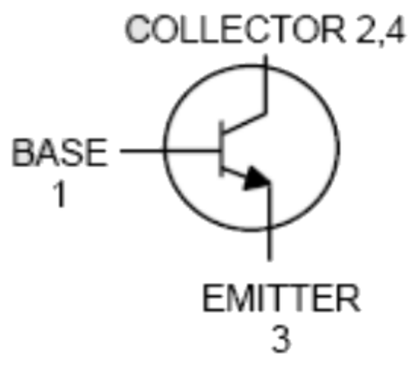
Mechanical Data

- Case: SOT-223
- Molding compound, UL flammability classification rating 94V-0
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, Method 208

SOT223



Circuit Diagram



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

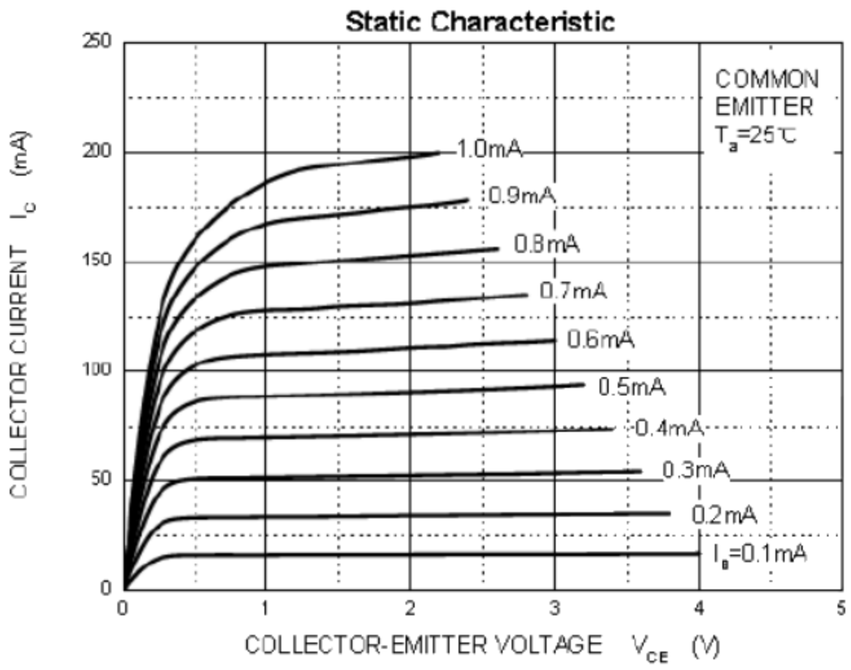
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	1	A
I_{CM}	Peak Collector Current	1.5	A
I_B	Base Current	0.1	A
I_{BM}	Peak Base Current	0.2	A

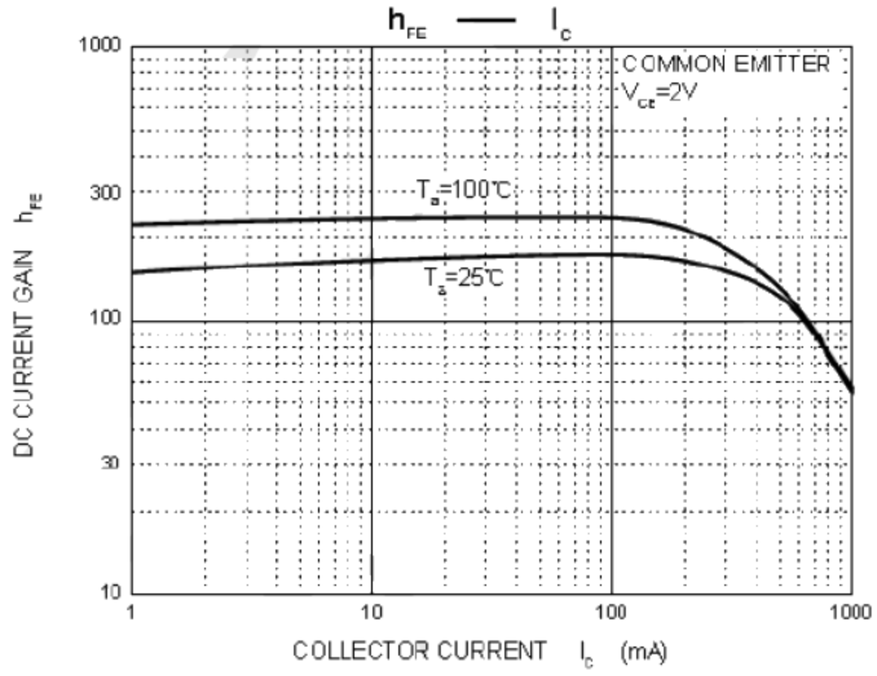
Thermal Characteristic

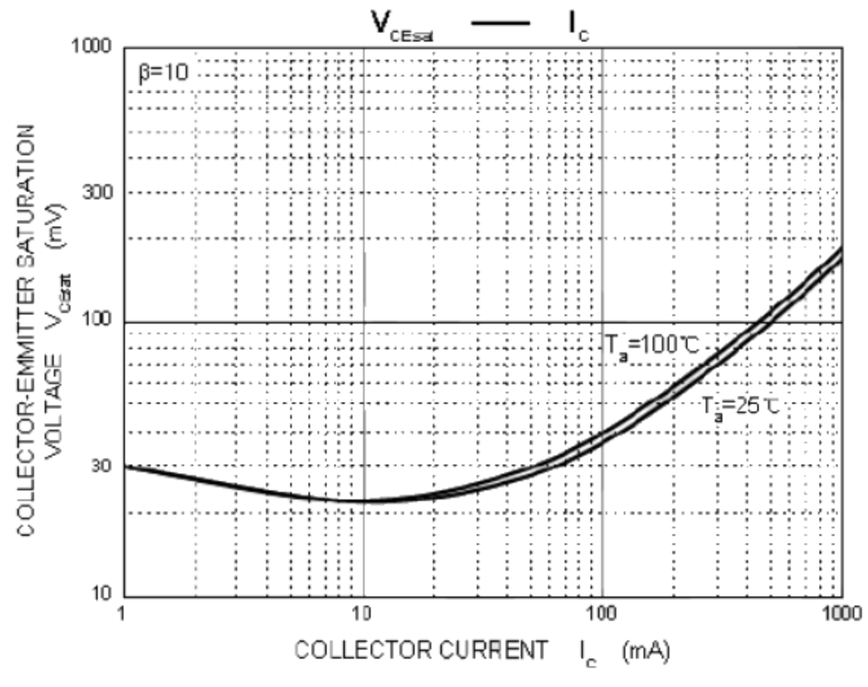
Symbol	Parameter	Value	Units
P_D	Power Dissipation *1	1.5	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Air *2	104	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-to-Case *2	32	°C/W
$R_{\theta JL}$	Thermal Resistance Junction-to-Lead *2	14	°C/W
T_J	Junction Temperature	150	℃
T_{STG}	Junction and Storage Temperature	-55 to +150	℃

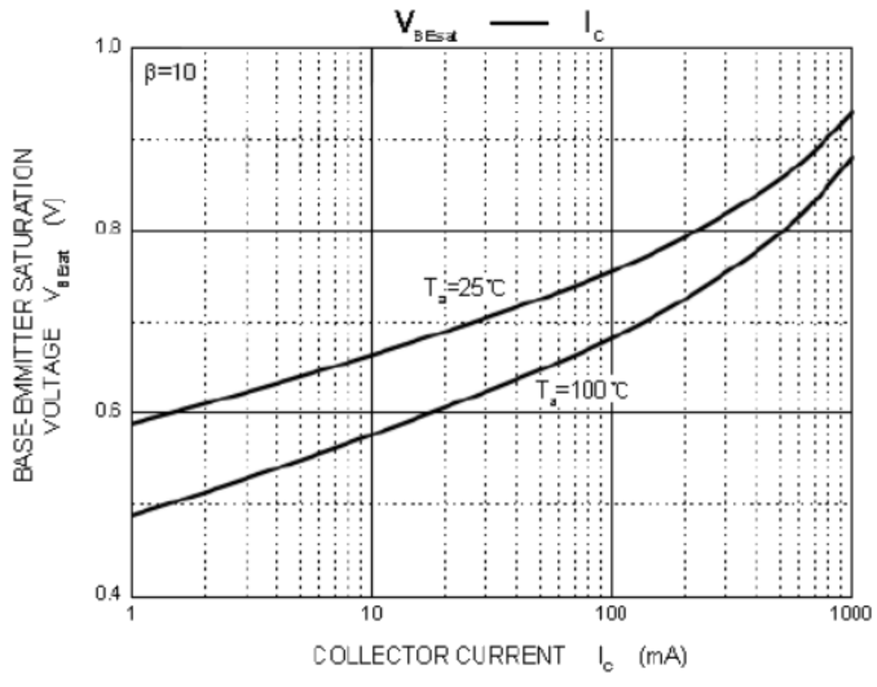
Electrical Characteristics (TA=25°C unless otherwise specified)

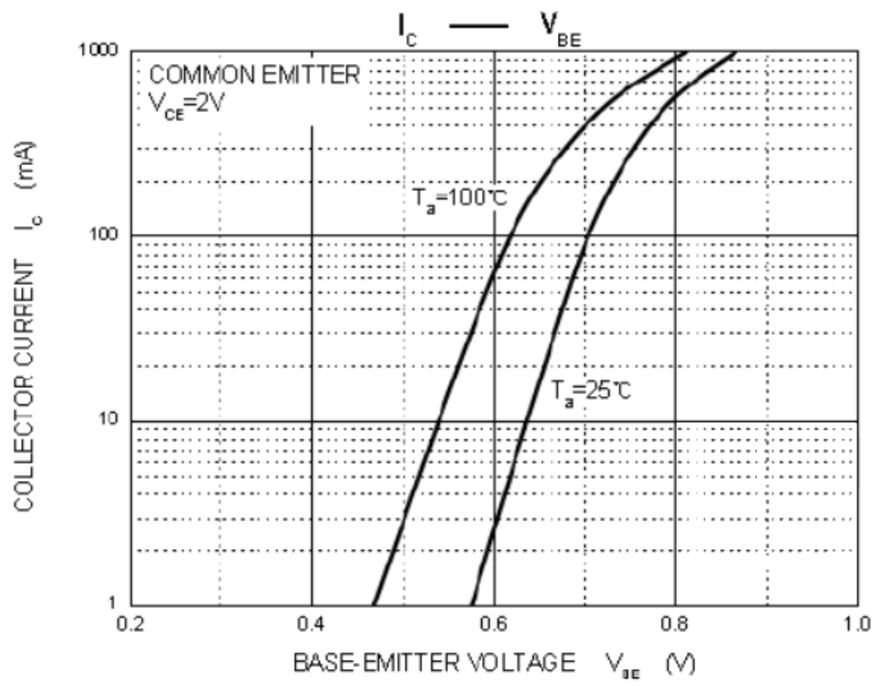
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector cut-off current	I_{CBO}	V_{CB}=30V,I_E=0	-	-	100	nA
Emitter cut-off current	I_{EBO}	I_C=0,V_{EB}=5V	-	-	100	nA
DC Current Gain	h_{FE}	V_{CE}=2V, I_C=150 mA	100		250	
Collector-Emitter Saturation Voltage (Note 2)	$V_{CE(sat)}$	I_C=0.5A,I_B=50mA	-	-	0.5	V
Base-emitter Voltage	V_{BE}	I_C=0.5A,V_{CE}=2V	-	-	1	V
Transition frequency	f_T	V_{CE}=10V, I_C=50mA f=100MHz	100	-	-	MHz

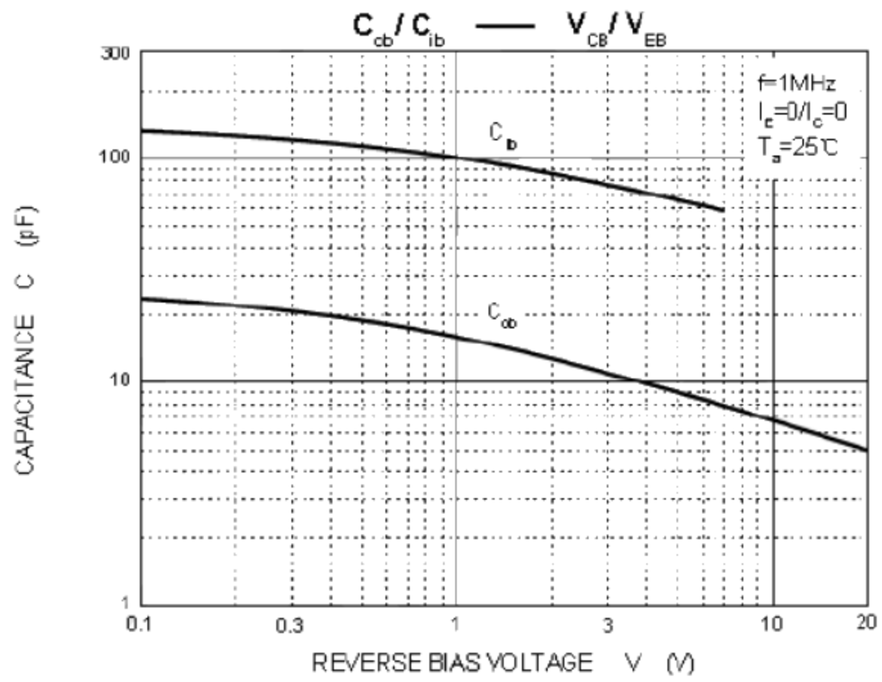

Static Characteristic
COMMON EMITTER
T_a=25℃
1.0mA
0.9mA
0.8mA
0.7mA
0.6mA
0.5mA
0.4mA
0.3mA
0.2mA
I_B=0.1mA
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
0
50
100
150
200
250
0
1
2
3
4
5

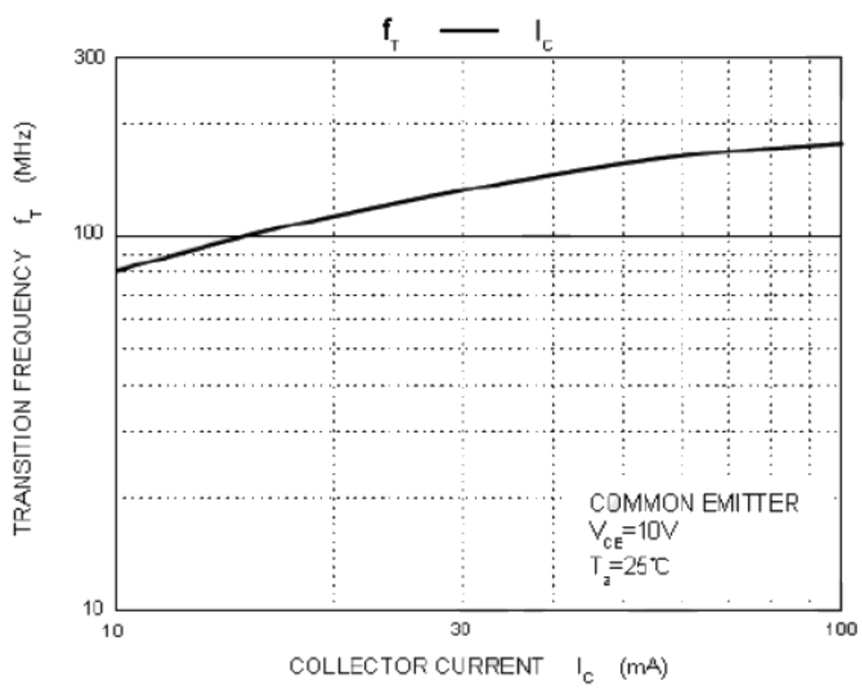

h_{FE} — I_C
COMMON EMITTER
V_{CE}=2V
T_a=100℃
T_a=25℃
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)
10
30
100
300
1000
1
10
100
1000

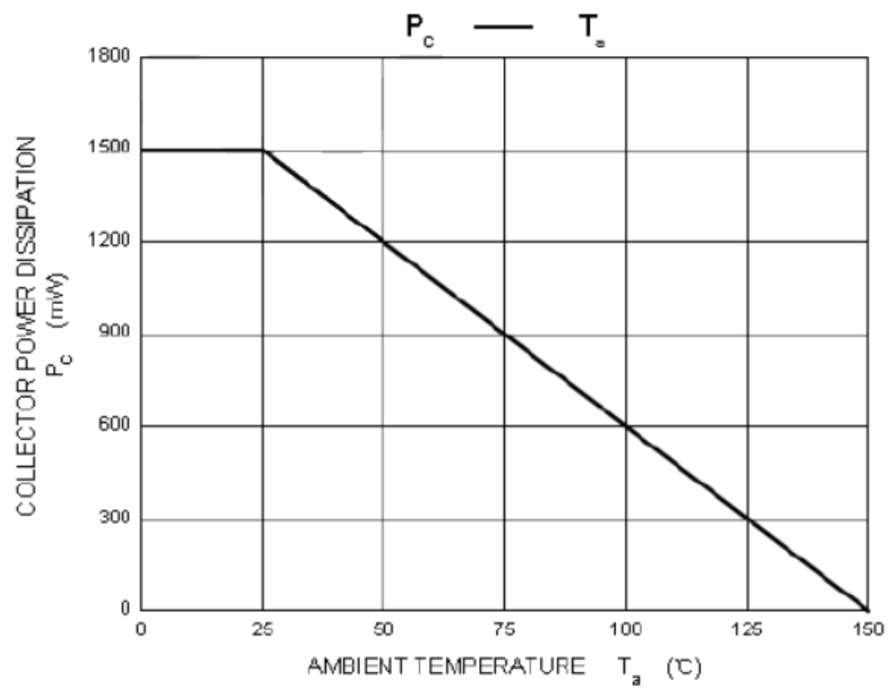

V_{CEsat} — I_C
β=10
T_a=100℃
T_a=25℃
COLLECTOR-EMMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)
10
30
100
300
1000
1
10
100
1000


V_{BEsat} — I_C
β=10
T_a=25℃
T_a=100℃
BASE-EMMITTER SATURATION VOLTAGE V_{BEsat} (V)
COLLECTOR CURRENT I_C (mA)
0.4
0.6
0.8
1.0
1
10
100
1000

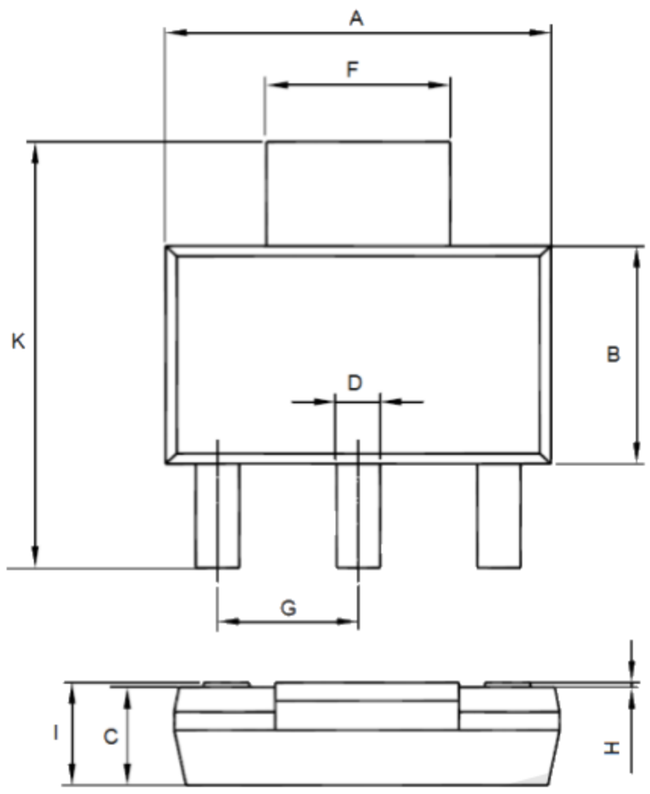

I_C — V_{BE}
COMMON EMITTER
V_{CE}=2V
T_a=100℃
T_a=25℃
COLLECTOR CURRENT I_C (mA)
1000
100
10
1
0.2
0.4
0.6
0.8
1.0
BASE-EMITTER VOLTAGE V_{BE} (V)


C_{cb} / C_{ib} — V_{CB} / V_{EB}
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
300
100
10
1
0.1
0.3
1
3
10
20
REVERSE BIAS VOLTAGE V (V)


f_T — I_C
COMMON EMITTER
V_{CE}=10V
T_a=25℃
TRANSITION FREQUENCY f_T (MHz)
300
100
10
10
30
100
COLLECTOR CURRENT I_C (mA)


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (mW)
1800
1500
1200
900
600
300
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)

Outline Drawing - SOT223



SOT-223		
Dim	Min	Max
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30