



S8050

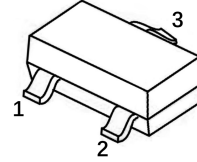
NPN Plastic-Encapsulate Transistors

Product data sheet

1. General description

Small Signal NPN Transistor encapsulated in a small SOT-23 Surface- Mounted Device (SMD) plastic package.

SOT-23



2.Features

- Complementary to S8550
- Collector Current: $I_c=0.5A$

3. Applications

- Surface Mount Package Ideally Suited for Automatic Insertion
- For General Purpose Switching Applications

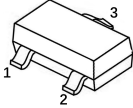
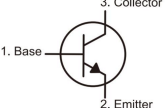
4. Quick referencedata

Table 1. Quick reference data
 $T_a=25^{\circ}C$

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	25	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current	0.5	A
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	417	$^{\circ}C/W$

5.SOT-23 Pinning information

Table 2. Pinning information

Pin	Name	SOT-23 Simplified outline	Graphic symbol
1	Base		
2	Emitter		
3	Collector		

6.Ordering information

Table 3. Ordering information

Part number	Package	Material	Packing	Quantity per reel	Flammability rating	Reel size
S8050	SOT-23	halogen free	tape & reel	3,000pcs	UL 94V-0	7 inches

7. Marking

Table 4. Marking codes

Part number	Marking code
S8050	J3Y

8. MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

Table 5. Maximum Ratings

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	40	V
V _{CEO}	Collector-Emitter Voltage	25	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current	0.5	A
P _C	Collector Power Dissipation	300	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	417	℃/W
T _J	Junction Temperature	150	℃
T _J , T _{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

9. ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

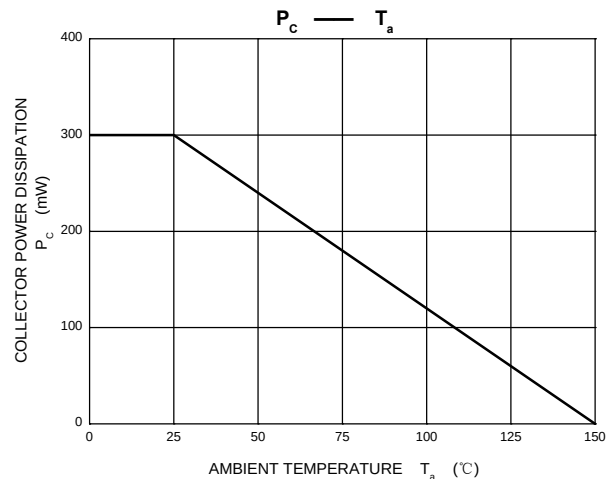
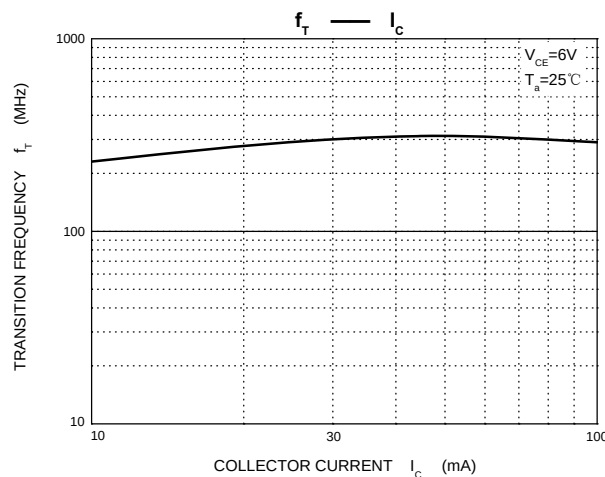
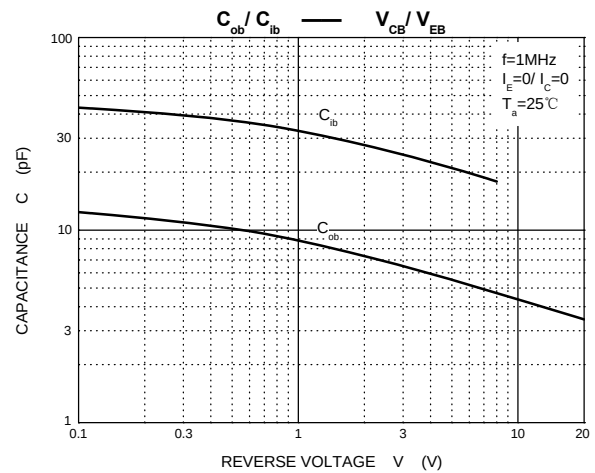
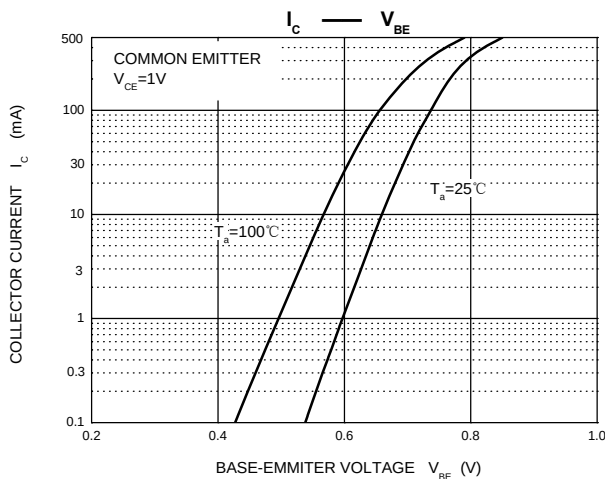
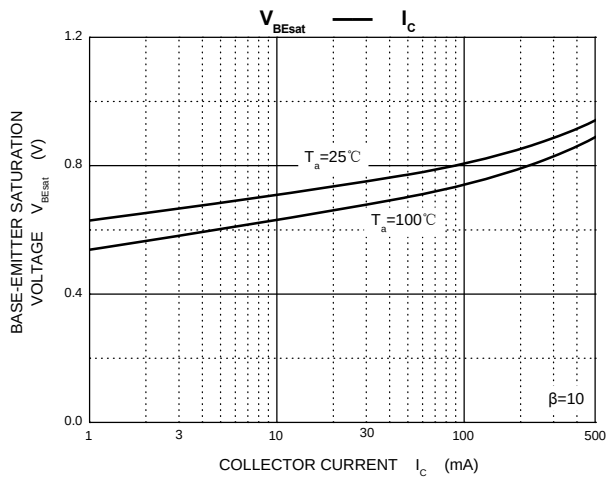
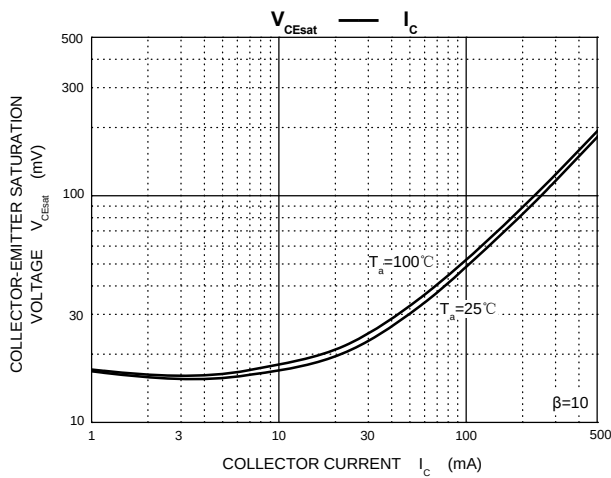
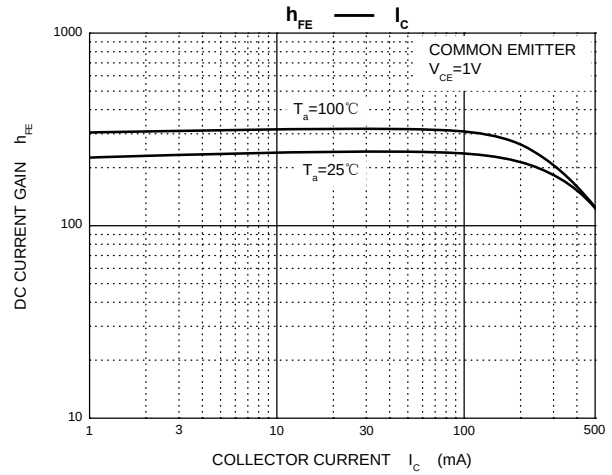
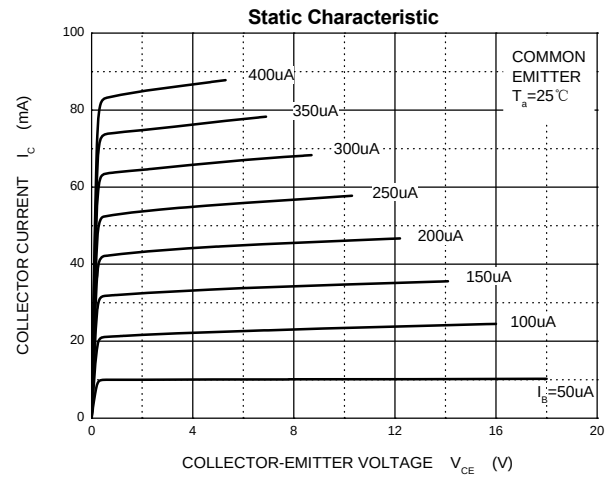
Table 6. Electrical Characteristics

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = 100μA, I _E =0	40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA, I _B =0	25			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =100μA, I _C =0	5			V
Collector cut-off current	I _{CBO}	V _{CB} =40V, I _E =0			0.1	μA
Collector cut-off current	I _{CEO}	V _{CE} =20V, I _E =0			0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} = 5V, I _C =0			0.1	μA
DC current gain	h _{FE(1)}	V _{CE} =1V, I _C = 50mA	120		400	
	h _{FE(2)}	V _{CE} =1V, I _C = 500mA	50			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =500mA, I _B = 50mA			0.6	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C =500mA, I _B = 50mA			1.2	V
Transition frequency	f _T	V _{CE} =6 V, I _C = 20mA f=30MHz	150			MHz

Table 7. CLASSIFICATION OF h_{FE}

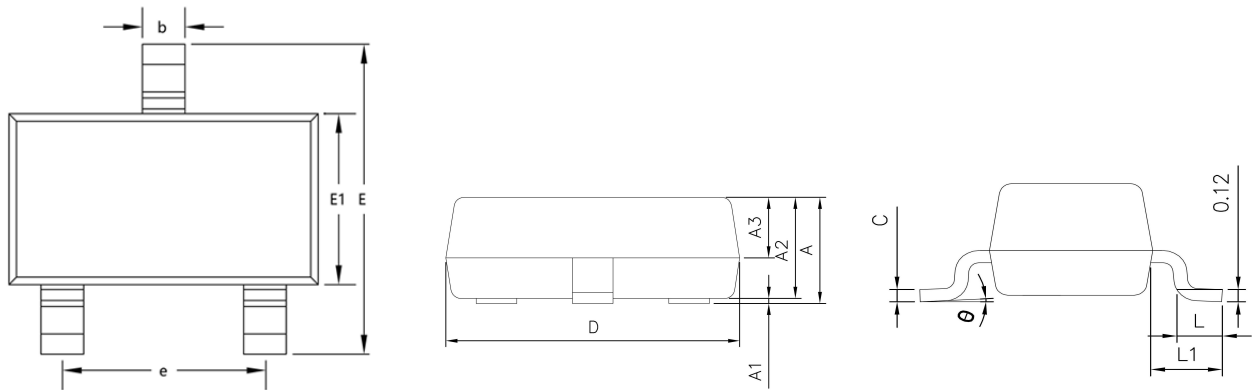
Rank	L	H	J
Range	120-200	200-350	300-400

10. Typical characteristics



11.Package outline

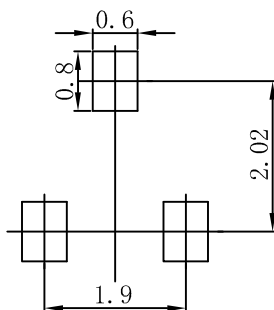
Table 8. SOT-23Package outline



Symbol	Dimension in millimeter		
	Min	Nom	Max
A	0.9	1.05	1.2
A1	0.0	0.05	0.1
A2	0.9	1.00	1.10
A3	0.55	0.60	0.65
b	0.30	0.40	0.50
c	0.10	0.11	0.12
D	2.80	2.90	3.0
E	2.25	2.40	2.55
E1	1.20	1.30	1.40
e	1.8	1.9	2.0
L	0.30	0.40	0.50
L1	0.475	0.55	0.625
θ	0°	3°	6°

12.Suggested pad layout

Table 9. Suggested pad layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

13.Disclaimer

CCX PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with CCX products. You are solely responsible for

- (1) selecting the appropriate CCX products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. CCX grants you permission to use these resources only for development of an application that uses the CCX products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other CCX intellectual property right or to any third party intellectual property right. CCX disclaims responsibility for, and you will fully indemnify CCX and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. CCX's products are provided subject to CCX's Terms of Sale or other applicable terms available either on www.CCX.com or provided in conjunction with such CCX products. CCX's provision of these resources does not expand or otherwise alter CCX's applicable warranties or warranty disclaimers for CCX products.