



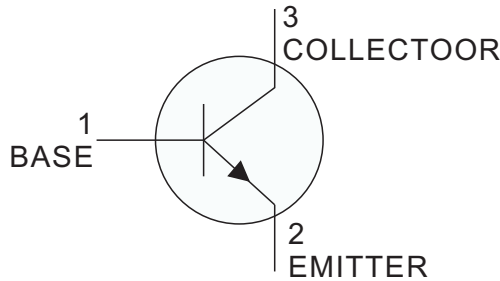
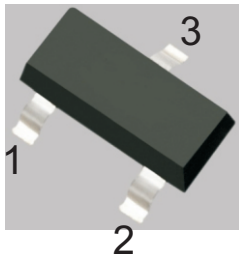
General Purpose Transistor

NPN Silicon

FEATURES

- Complementary to S9015

SOT-23



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	45	Vdc
Collector–Base Voltage	V_{CBO}	50	Vdc
Emitter–Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	100	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR– 5 Board, (1) $T_A = 25^\circ\text{C}$	P_D	200	mW
Junction and Storage Temperature	T_J, T_{stg}	- 55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)
OFF CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Collector–Emitter Breakdown Voltage(3) ($I_C = 0.1 \text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$	45	–	Vdc
Collector–Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	50	–	Vdc
Emitter–Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	5.0	–	Vdc
Collector cut-off current ($V_{CB} = 50 \text{ Vdc}, I_E = 0$)	I_{CBO}	–	0.1	μAdc
Collector cut-off current ($V_{CE} = 35 \text{ Vdc}, I_B = 0$)	I_{CEO}	–	1	μAdc
Emitter cut-off current ($V_{EB} = 3 \text{ Vdc}, I_C = 0$)	I_{EBO}	–	0.1	μAdc

1. FR–5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.
3. Pulse Test: Pulse Width <300 μs , Duty Cycle <2.0%.



**ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)
ON CHARACTERISTICS (3)**

Characteristic	Symbol	Min	Max	Unit
DC Current Gain (I _C = 1.0 mA _{dc} , V _{CE} = 5 V _{dc})	S9014-L	200	450	—
	S9014-H	450	1000	
Collector–Emitter Saturation Voltage (I _C = 100 mA _{dc} , I _B = 5 mA _{dc})(3)	V _{CE(sat)}	—	0.3	V _{dc}
Base–Emitter Saturation Voltage(3) (I _C = 100 mA _{dc} , I _B = 5mA _{dc})	V _{BE(sat)}	—	1.0	V _{dc}

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 10mA _{dc} , V _{CE} = 5.0V _{dc} , f =30MHz)	f _t	150	—	MHz
---	----------------	-----	---	-----

CLASSIFICATION OF h_{FE}

Rank	L	H
Range	200-450	450-1000

3. Pulse Test: Pulse Width <300 μs, Duty Cycle <2.0%.



TYPICAL CHARACTERISTICS

Fig.1 Power Derating Curve

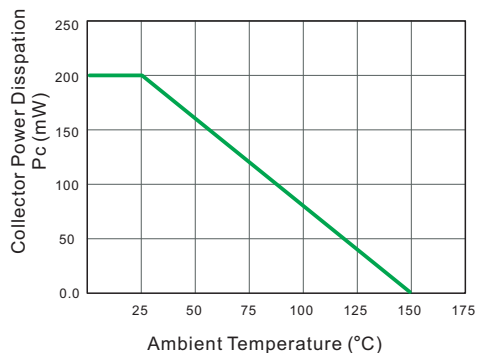


Fig.2 Static characteristics

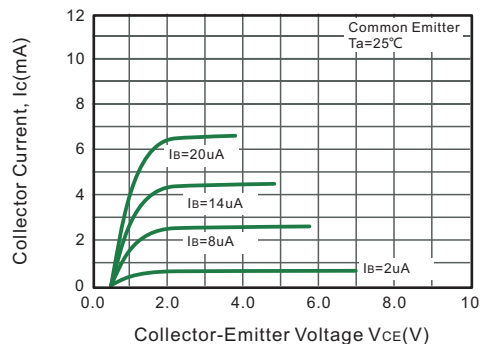


Fig.3 $h_{FE}-I_c$

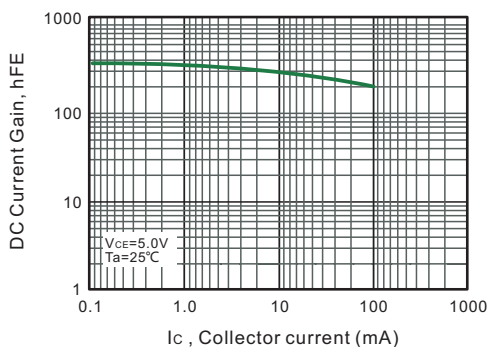


Fig.4 I_c-V_{BE}

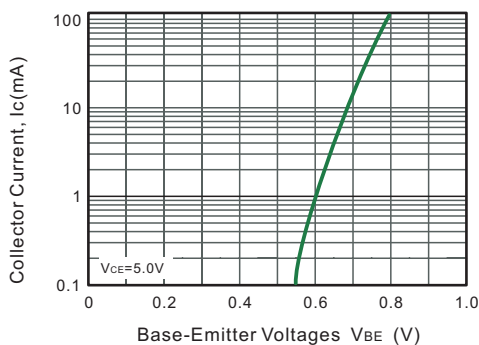


Fig.5 $V_{BEsat}-I_c$

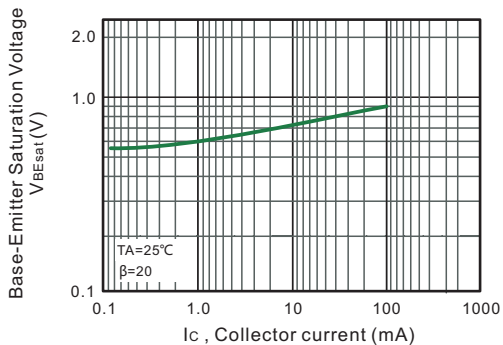


Fig.6 $V_{CEsat}-I_c$

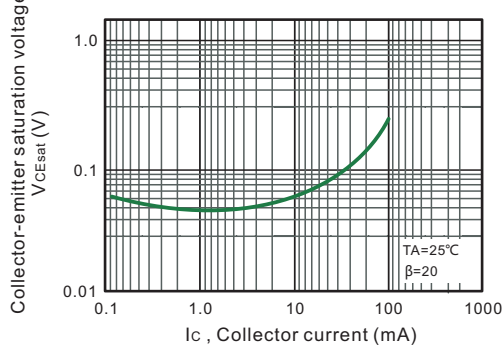


Fig.7 f_T-I_c

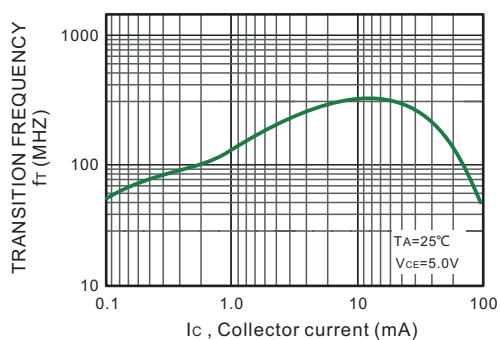
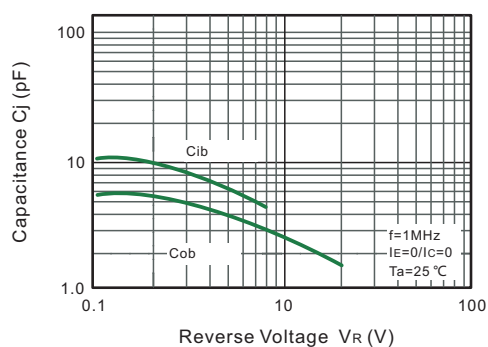
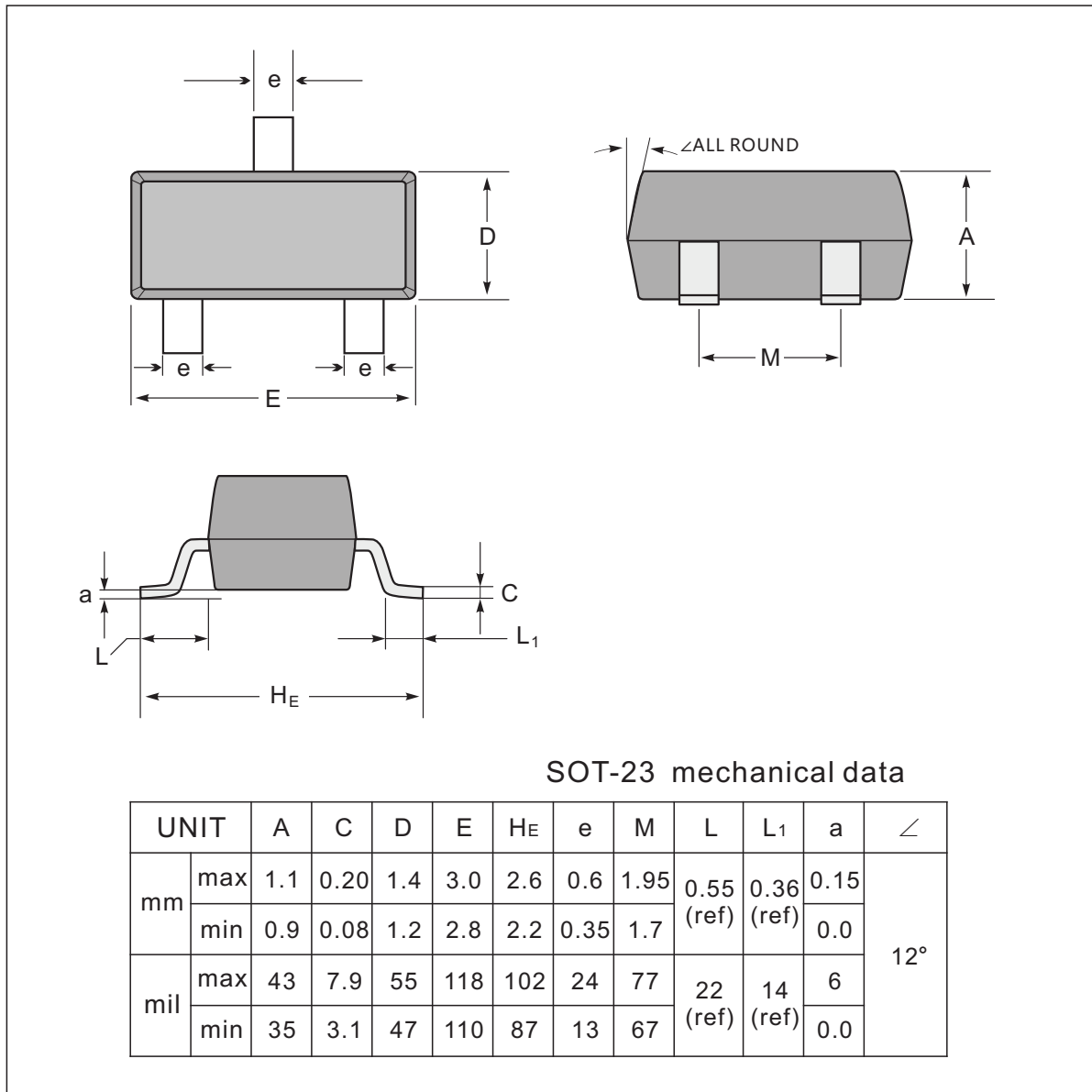


Fig.8 $C_{ob}/C_{ib}-V_{CB}/V_{EB}$

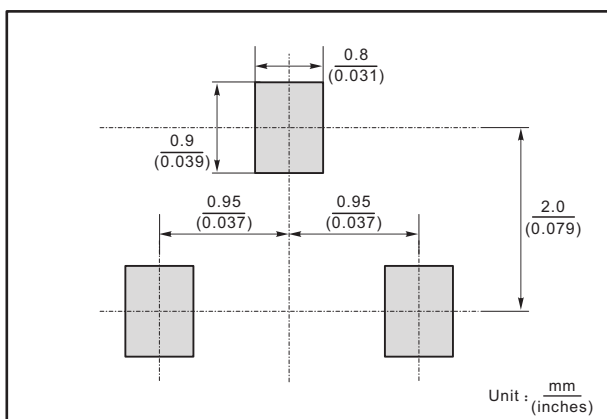




SOT-23 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
S9014-L	J6L
S9014-H	J6H