S9013

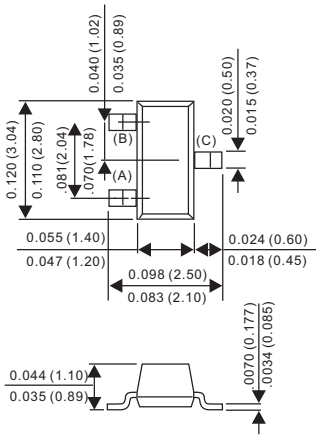
General Purpose Transistors
NPN Silicon

Features

- High collector current. (500mA)
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free

Package outline

SOT-23



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

Maximum ratings (AT T_A=25℃ unless otherwise noted)

Rating	Symbol	Value	Unit
Collector–emitter voltage	V_{CEO}	25	V
Collector–base voltage	V_{CBO}	40	V
Emitter–base voltage	V_{EBO}	5	V
Collector current — continuous	I_C	500	mA
Collector Power Dissipation	P_C	300	mW
Thermal resistance From junction to ambient	$R_{\theta JA}$	416	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	Tstg	-55-+150	℃

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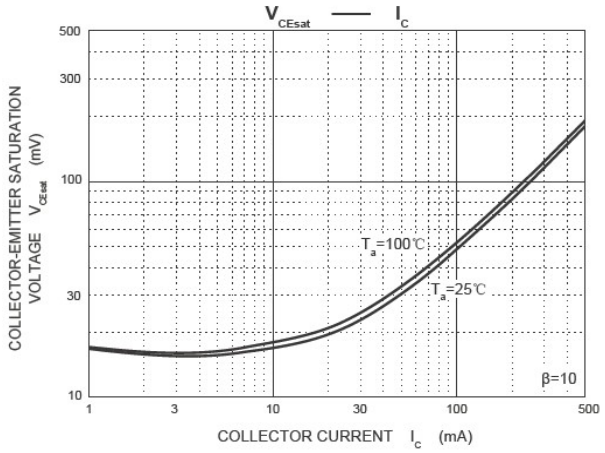
Electrical characteristics (AT T_A=25°C unless otherwise noted)

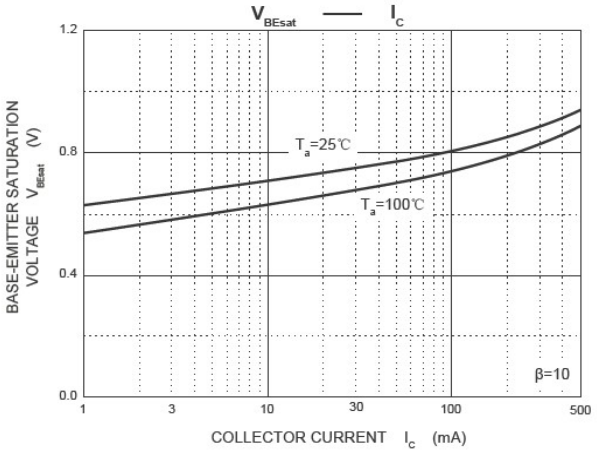
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Off characteristics						
Collector-emitter breakdown voltage	I_C=1mA	$V_{(BR)CEO}$	25			V
Emitter-base breakdown voltage	I_E=100uA	$V_{(BR)EBO}$	5			V
Collector-base breakdown voltage	I_C=100uA	$V_{(BR)CBO}$	40			V
Collector cutoff current	V_{CB}=35V	I_{CBO}			150	nA
Emitter cutoff current	V_{EB}=4V	I_{EBO}			150	nA
On characteristics						
Collector-emitter saturation voltage	I_C=500mA I_B= 50mA	$V_{CE(sat)}$			0.6	V
Base-emitter saturation voltage	I_C=500mA I_B= 50mA	$V_{BE(sat)}$			1.2	V
Base-emitter saturation voltage	I_C=10mA V_{CB} =1V	$V_{BE(sat)}$			0.7	V
DC current gain *	I_C=100mA V_{CE} = 1V	h_{FE}	70		400	-

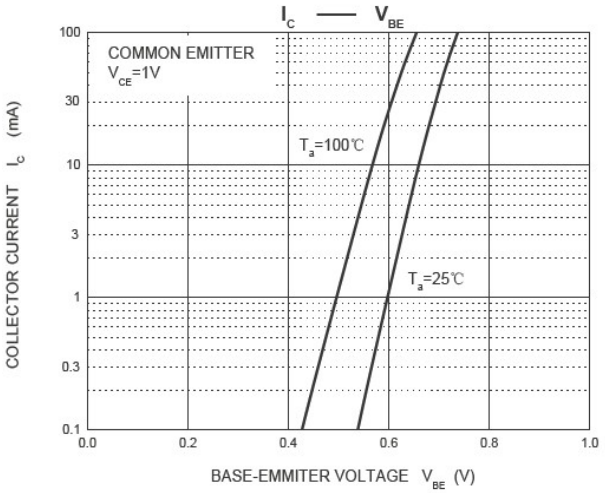
h_{FE} values are classified as follows:

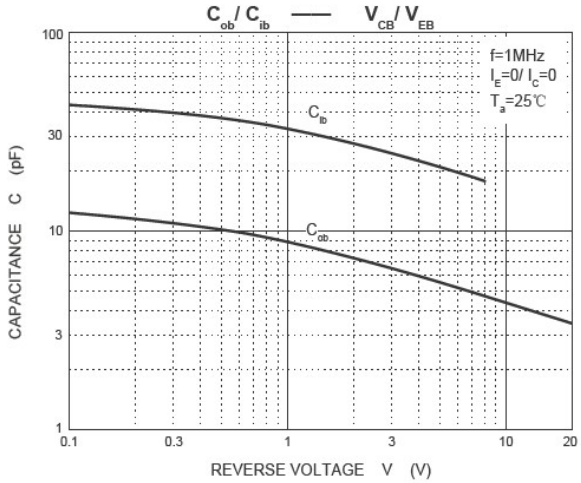
*	L	H	J
h_{FE}	70~200	200~350	300~400

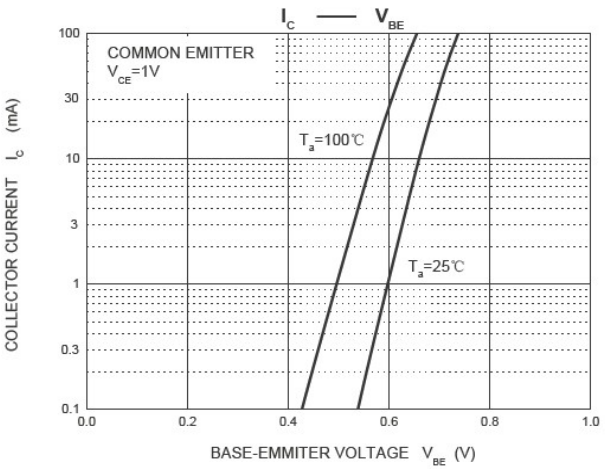
Typical characteristics

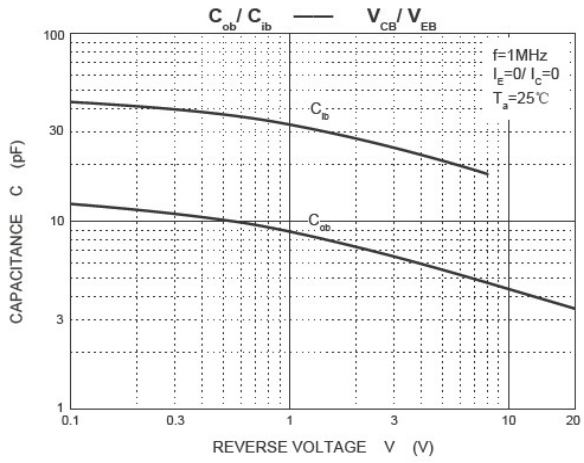


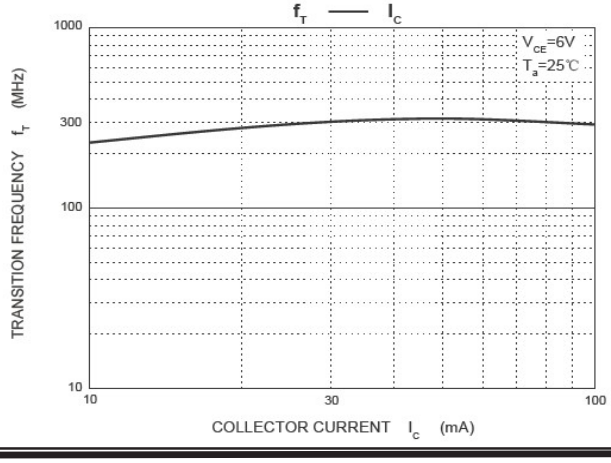


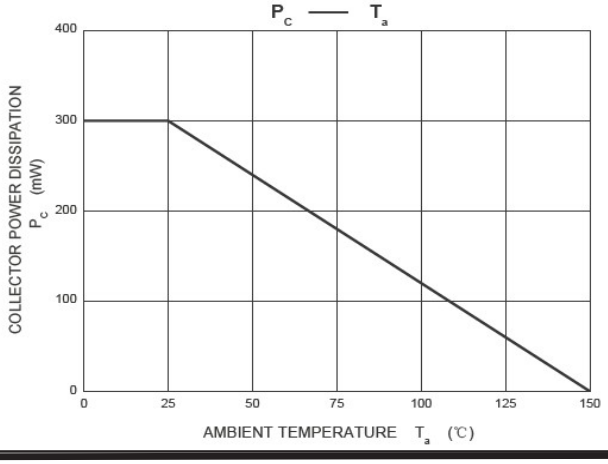












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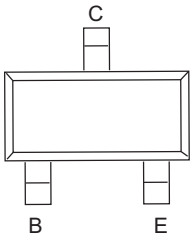
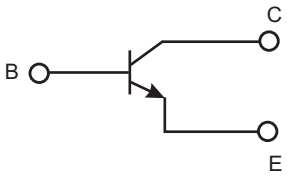
Pinning information

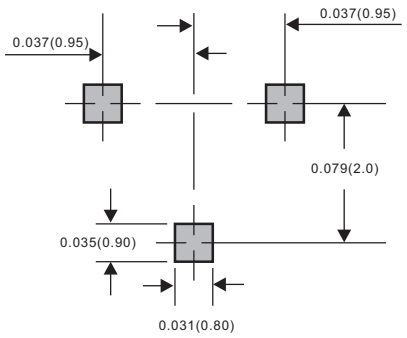
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
S9013	J3

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)