

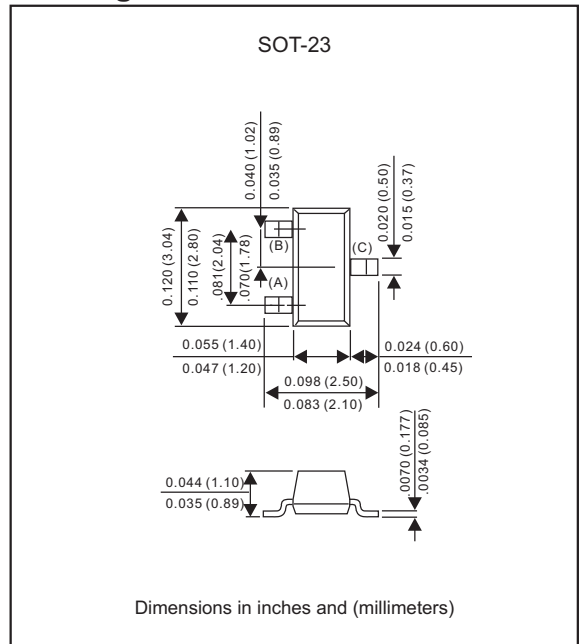
Features

- High collector current. (500mA)
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

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

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ 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	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55-+150	$^{\circ}\text{C}$

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
-----------	------------	--------	------	------	------	------

Off characteristics

Collector-emitter breakdown voltage	$I_C=1\text{mA}$	$V_{(BR)CEO}$	25			V
Emitter-base breakdown voltage	$I_E=100\mu\text{A}$	$V_{(BR)EBO}$	5			V
Collector-base breakdown voltage	$I_C=100\mu\text{A}$	$V_{(BR)CBO}$	40			V
Collector cutoff current	$V_{CB}=35\text{V}$	I_{CBO}			150	nA
Emitter cutoff current	$V_{EB}=4\text{V}$	I_{EBO}			150	nA

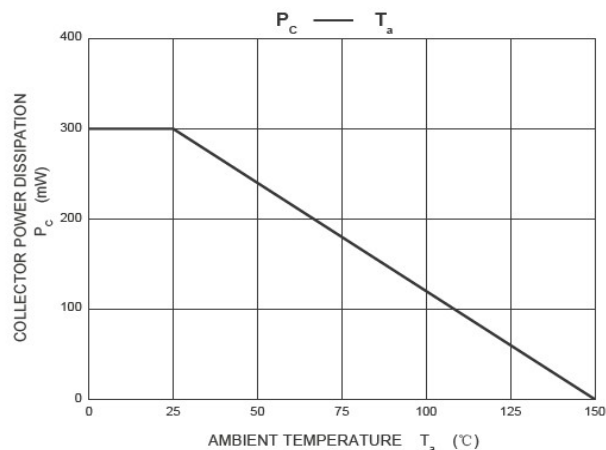
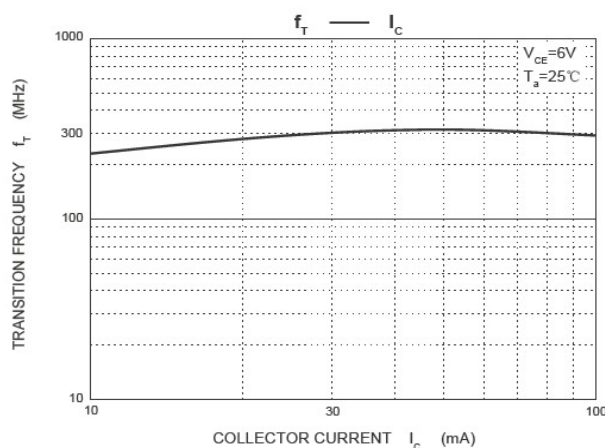
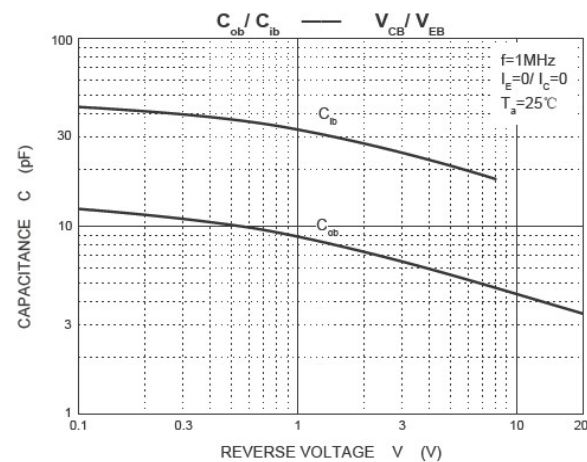
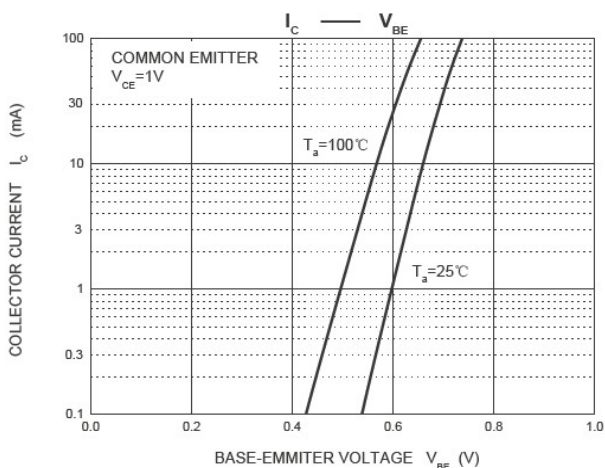
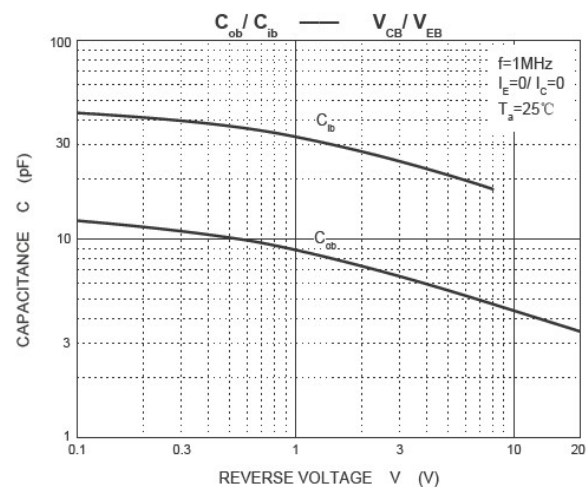
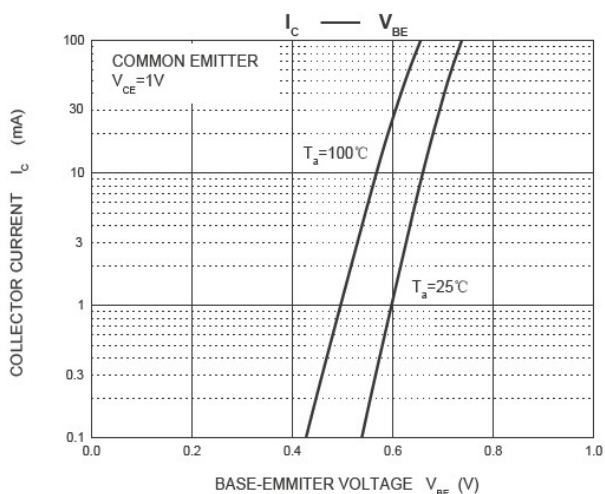
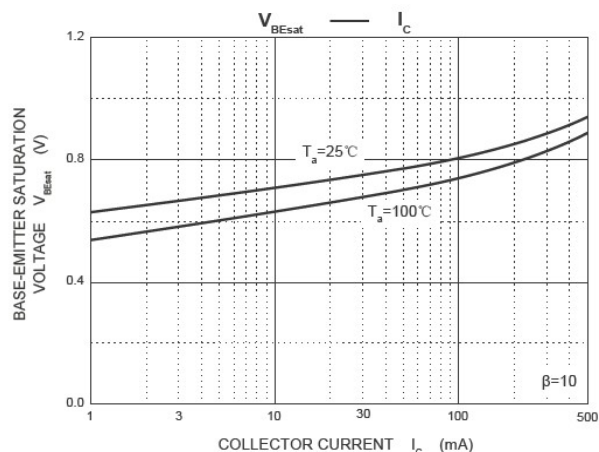
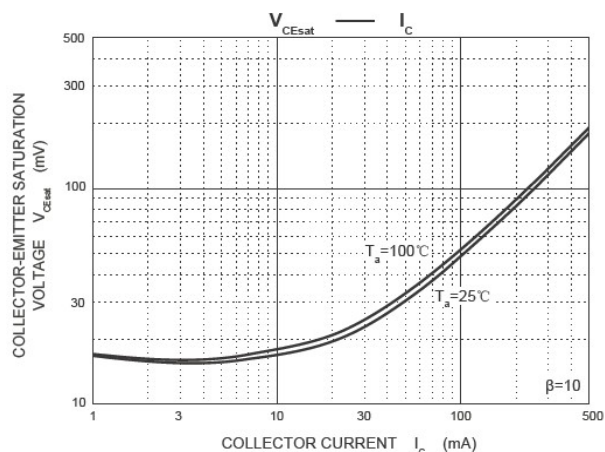
On characteristics

Collector-emitter saturation voltage	$I_C=500\text{mA}$ $I_B=50\text{mA}$	$V_{CE(sat)}$			0.6	V
Base-emitter saturation voltage	$I_C=500\text{mA}$ $I_B=50\text{mA}$	$V_{BE(sat)}$			1.2	V
Base-emitter saturation voltage	$I_C=10\text{mA}$ $V_{CB}=1\text{V}$	$V_{BE(sat)}$			0.7	V
DC current gain *	$I_C=100\text{mA}$ $V_{CE}=1\text{V}$	h_{FE}	70		400	-

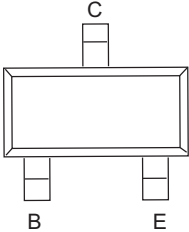
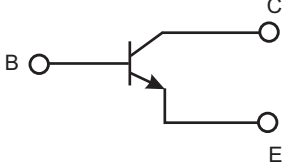
h_{FE} values are classified as follows:

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

Typical characteristics



Pinning information

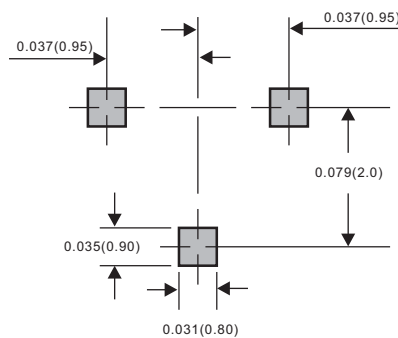
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
S9013-Q1	J3

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)