

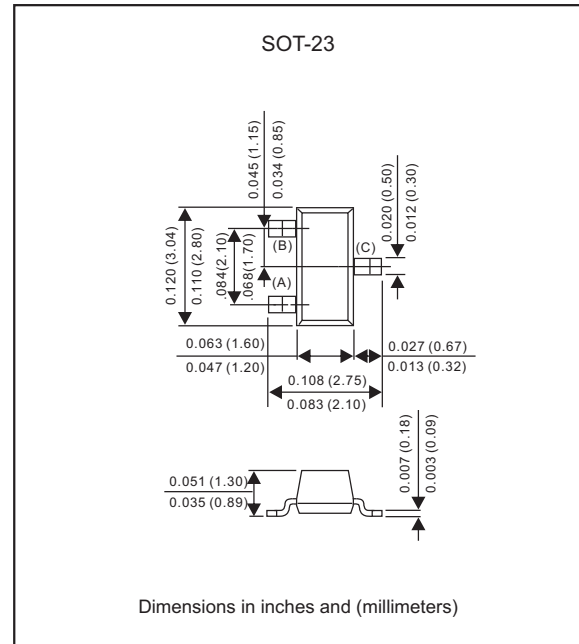
### Features

- High current capacity in compact package  $I_c = 0.5A$ .
- Epitaxial planar type
- Pb-Free package is available
- 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 $T_A=25^{\circ}C$ unless otherwise noted)

PARAMETER	Symbol	MAX.	UNIT
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	25	V
Emitter-base voltage	$V_{EBO}$	5.0	V
Collector current-continuoun	$I_c$	500	mAdc

### Thermal Characteristics

PARAMETER	Symbol	MIN.	TYP.	MAX.	UNIT
Total device dissipation FR-5 board (1)	$T_A = 25^{\circ}C$			225	mW
	Derate above $25^{\circ}C$			1.8	mW/ $^{\circ}C$
Thermal resistance	Junction to ambient			556	$^{\circ}C/W$
Total device dissipation alumina substrate(2)	$T_A = 25^{\circ}C$			300	mW
	Derate above $25^{\circ}C$			2.4	mW/ $^{\circ}C$
Thermal resistance	Junction to ambient			417	$^{\circ}C/W$
Operating Junction temperature Range	$T_J$	-55		+150	$^{\circ}C$
Storage temperature Range	$T_{STG}$	-55		+150	$^{\circ}C$

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.

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

#### Off characteristics

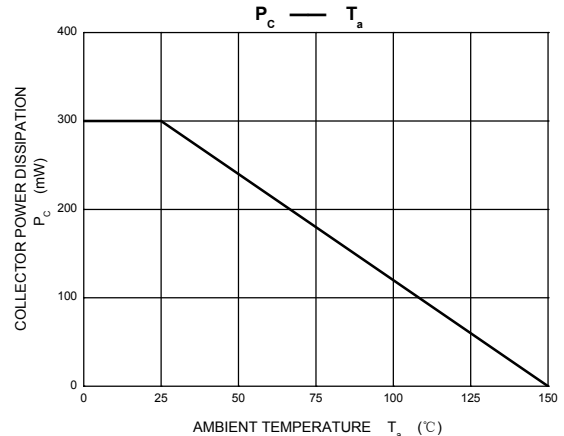
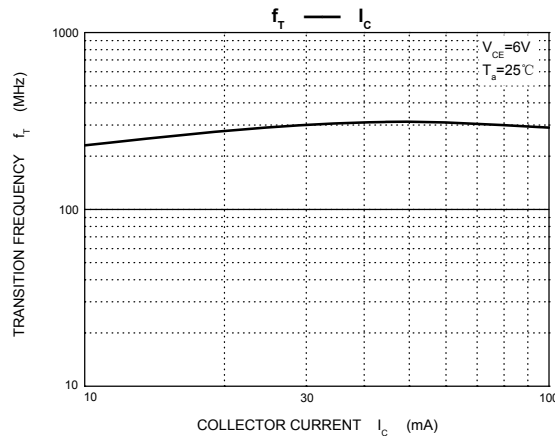
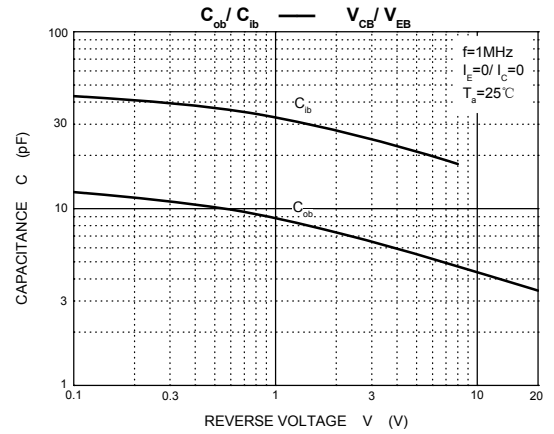
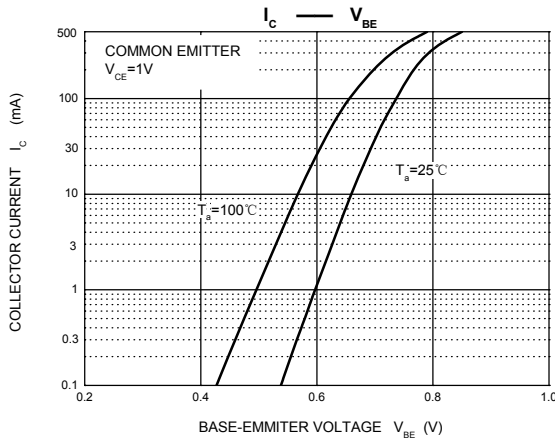
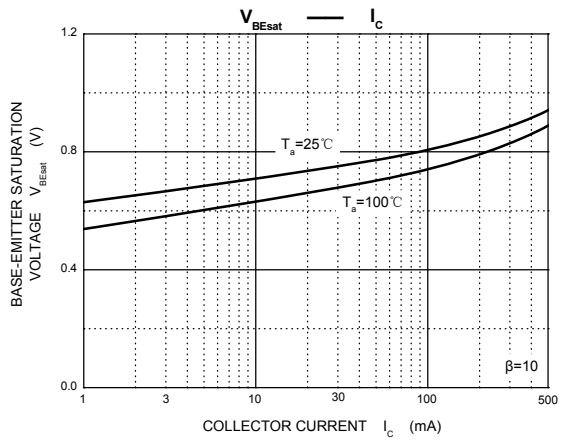
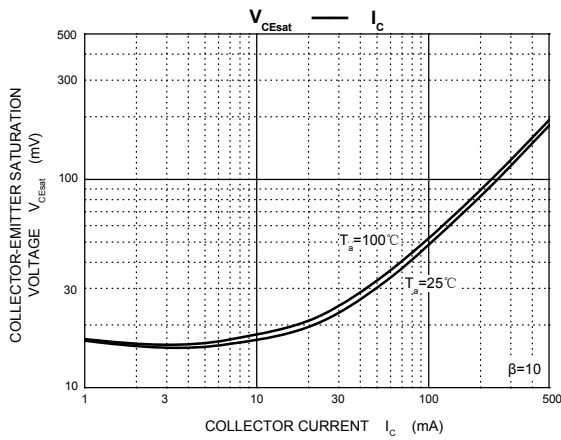
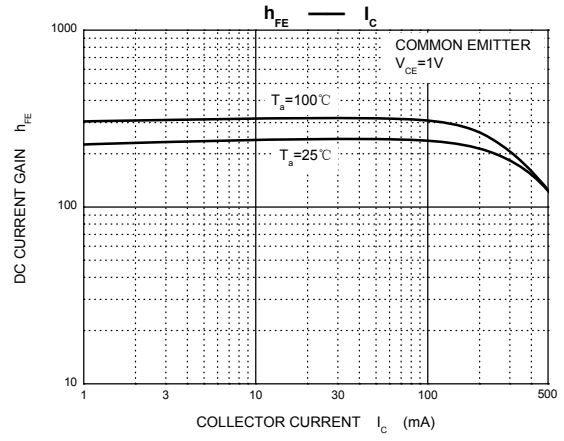
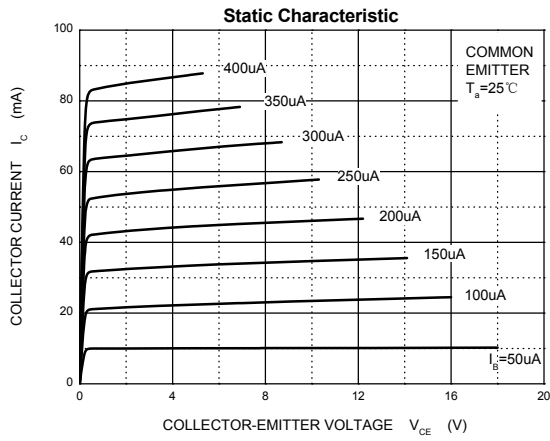
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Collector-base breakdown voltage	$I_c = 100\mu\text{A}$	$V_{(BR)CBO}$	40			V
Collector-emitter breakdown voltage	$I_c = 1.0\text{mA}$	$V_{(BR)CEO}$	25			V
Emitter-base breakdown voltage	$I_E = 100\mu\text{A}$	$V_{(BR)EBO}$	5.0			V
Collector cutoff current	$V_{CB} = 35\text{V}$	$I_{CBO}$			150	nA
Emitter cutoff current	$V_{EB} = 4.0\text{V}$	$I_{EBO}$			150	nA

#### On characteristics

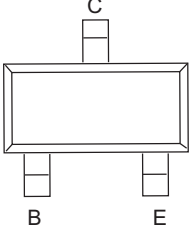
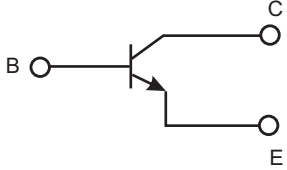
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
DC current gain	$I_c = 100\text{mA}, V_{CE} = 1.0\text{V}$	$h_{FE}^{*Note}$	80		400	
Collector-emitter saturation voltage	$I_c = 800\text{mA}, I_B = 80\text{mA}$	$V_{CE(sat)}$			0.5	V

Note	*	L	H	J
	$h_{FE}$	80~200	200~350	300~400

# Rating and characteristic curves



## Pinning information

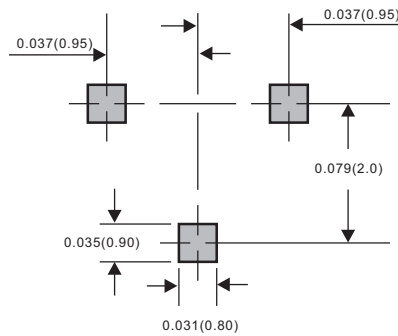
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

## Marking

Type number	Marking code
S8050-Q1	J3Y

## Suggested solder pad layout

### SOT-23



Dimensions in inches and (millimeters)