

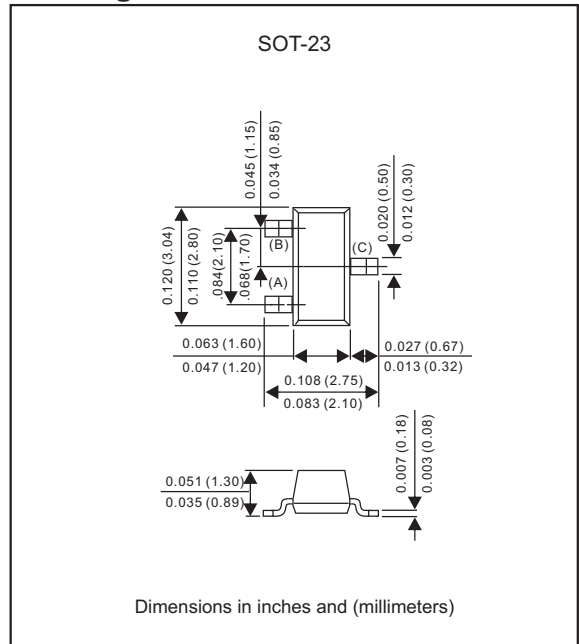
Features

- High voltage
- For telephony or professional communication equipment applications
- 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)

PARAMETER	CONDITIONS	SYMBOL	Value	UNIT
Collector-base voltage		V_{CB0}	300	V
Collector-emitter voltage		V_{CEO}	300	V
Emitter-base voltage		V_{EBO}	5.0	V
Collector current - continuous		I_C	300	mA
Collector Power Dissipation		P_C	350	mW
Thermal resistance	Junction to ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction temperatur		T_J	150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to +150	$^\circ\text{C}$

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

Off characteristics

PARAMETER	CONDITIONS	SYMBOL	Min.	Max.	UNIT
Collector-base breakdown voltage	$I_C = 100\mu\text{A}$, $I_E = 0$	$V_{(BR)CBO}$	300		V
Collector-emitter breakdown voltage(3)	$I_C = 1.0\text{mA}$, $I_B = 0$	$V_{(BR)CEO}$	300		V
Emitter-base breakdown voltage	$I_E = 10\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5.0		V
Emitter cutoff current	$V_{EB} = 5.0\text{V}$, $I_C = 0$	I_{EBO}		100	nA
Collector cutoff current	$V_{CB} = 200\text{V}$, $I_E = 0$	I_{CBO}		250	nA

On characteristics(3)

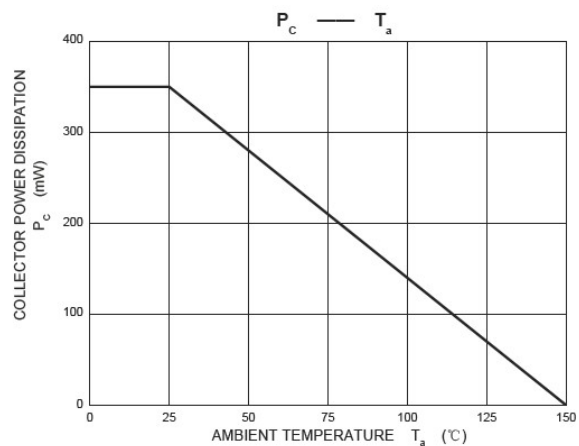
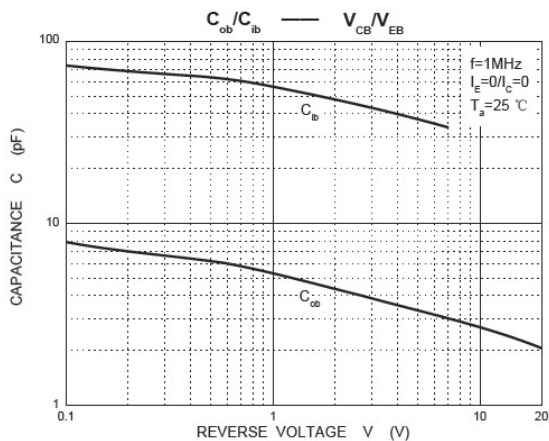
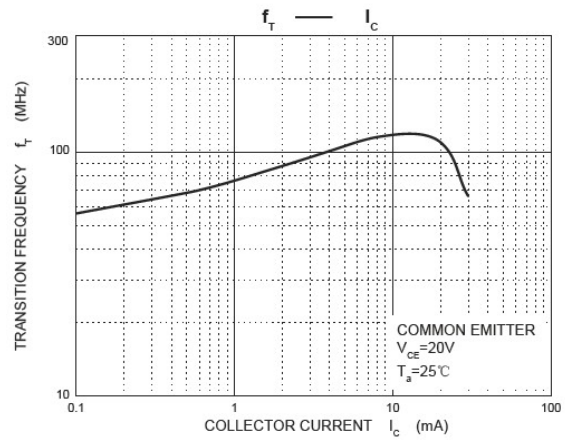
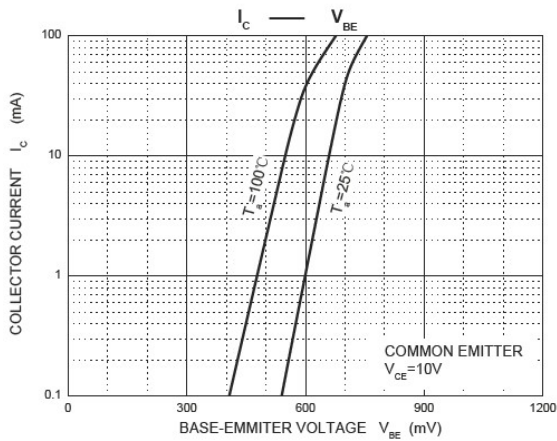
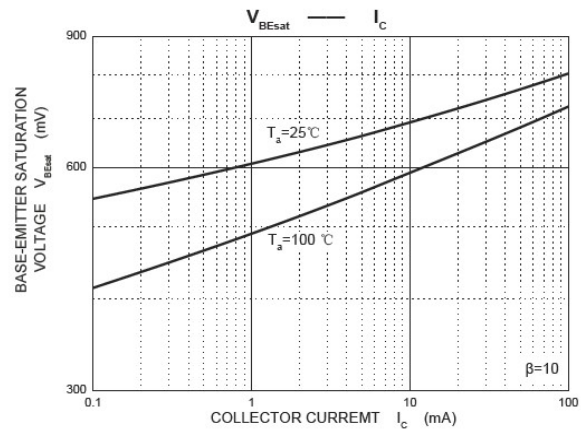
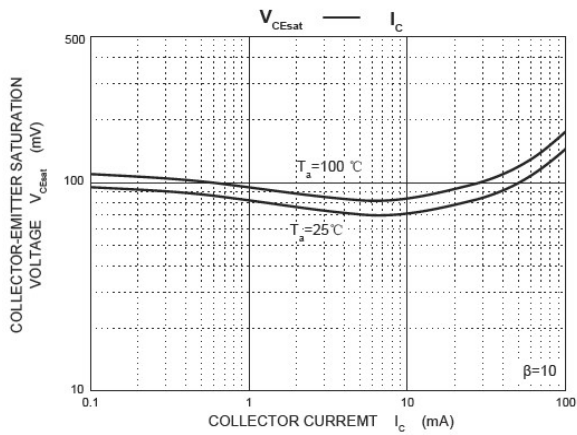
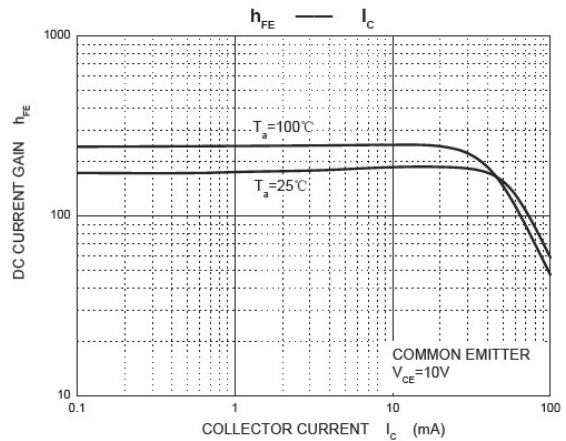
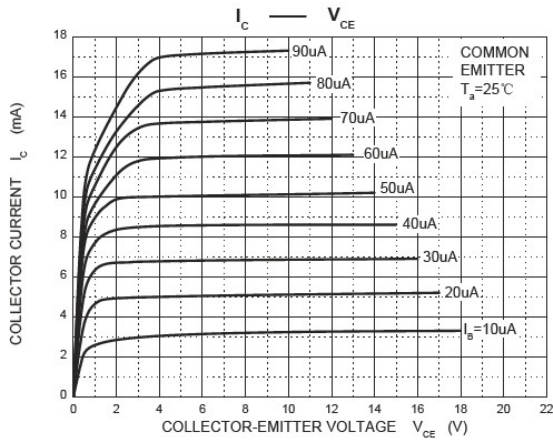
PARAMETER	CONDITIONS	SYMBOL	Min.	Max.	UNIT
DC current gain	$I_C = 1.0\text{mA}$, $V_{CE} = 10\text{V}$	$h_{FE(1)}^*$	60		
	$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}$	$h_{FE(2)}^*$	100	200	
	$I_C = 30\text{mA}$, $V_{CE} = 10\text{V}$	$h_{FE(3)}^*$	65		
Collector-emitter saturation voltage	$I_C = 20\text{mA}$, $I_B = 2.0\text{mA}$	$V_{CE(sat)}$		0.2	V
Base-emitter saturation voltage	$I_C = 20\text{mA}$, $I_B = 2.0\text{mA}$	$V_{BE(sat)}$		0.9	V

Small signal characteristics

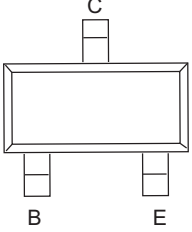
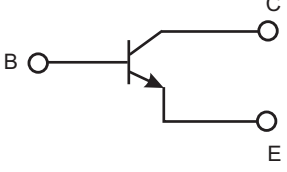
PARAMETER	CONDITIONS	SYMBOL	Min.	Max.	UNIT
Current gain bandwidth product	$I_C = 100\text{mA}$, $V_{CE} = 20\text{V}$, $f = 30\text{MHz}$	f_T	50		MHz

* Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$

Rating and characteristic curves (MMBTA42-Q1)



Pinning information

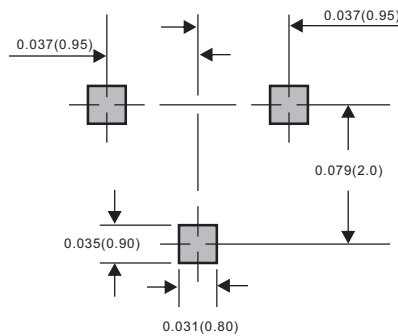
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
MMBTA42-Q1	1D

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)