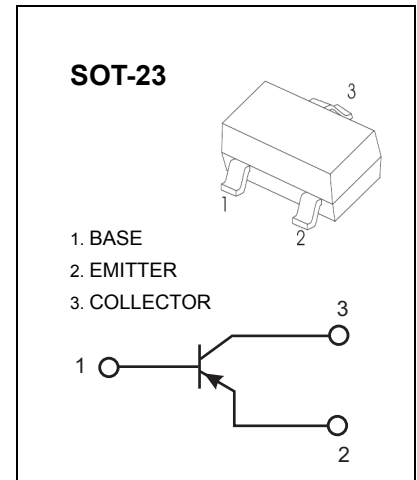


Features

- Epitaxial planar die construction
- Surface mount package
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

Mechanical Data

- **Package:** SOT-23
Molding compound meets UL 94 V-0 flammability rating
- **Terminals:** Tin plated leads, solderable per
MIL-STD-202 , Method 208



Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	-80	V
Collector-Emitter Breakdown Voltage	V_{CEO}	-80	V
Emitter-Base Breakdown Voltage	V_{EBO}	-4	V
Continuous Collector Current	I_C	-0.5	A
Power Dissipation($T_A = 25^\circ\text{C}$)	P_D	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-80	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-4	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -80\text{V}, I_E = 0$	-	-	-0.1	μA
Collector Cut-off Current	I_{CES}	$V_{CE} = -60\text{V}, I_B = 0$	-	-	-0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$	100	-	-	-
		$V_{CE} = -1\text{V}, I_C = -100\text{mA}$	100	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$	-	-	-0.25	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$	-	-	-1.2	V
Transition Frequency	f_T	$I_C = -100\text{mA}, V_{CE} = -1\text{V}$ $f = 100\text{MHz}$	50	-	-	MHz

Characteristics (Typical)

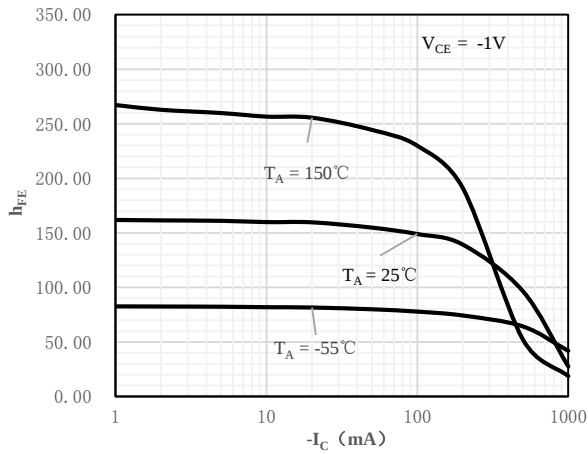


Fig 1 h_{FE} vs. I_C

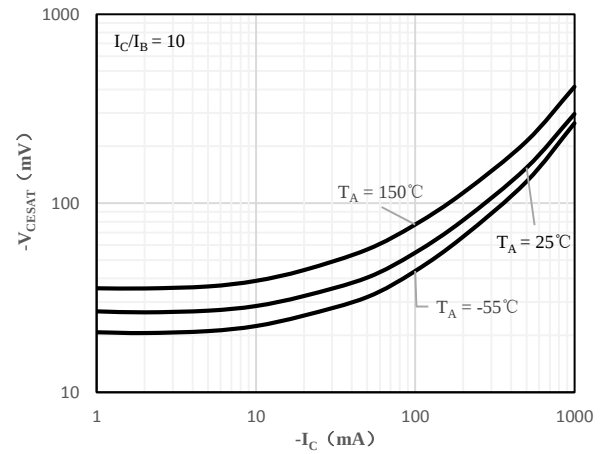


Fig 2 $V_{CE(sat)}$ vs. I_C

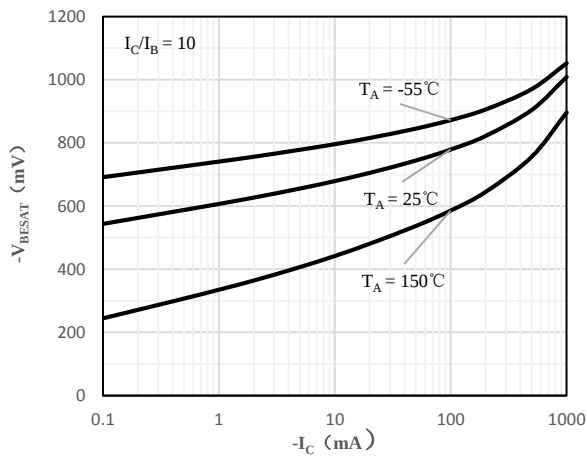


Fig 3 $V_{BE(sat)}$ vs. I_C

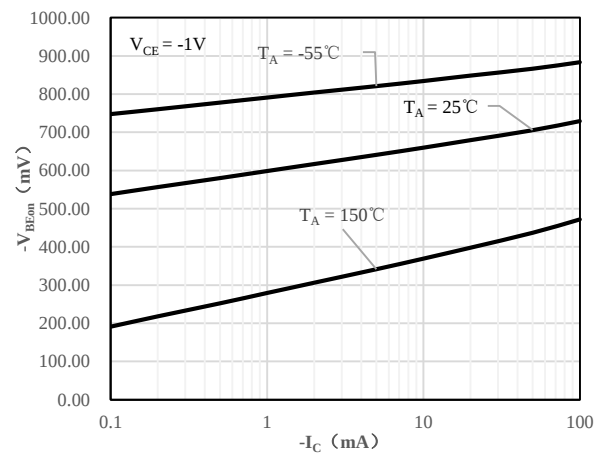


Fig 4 $V_{BE(on)}$ vs. I_C

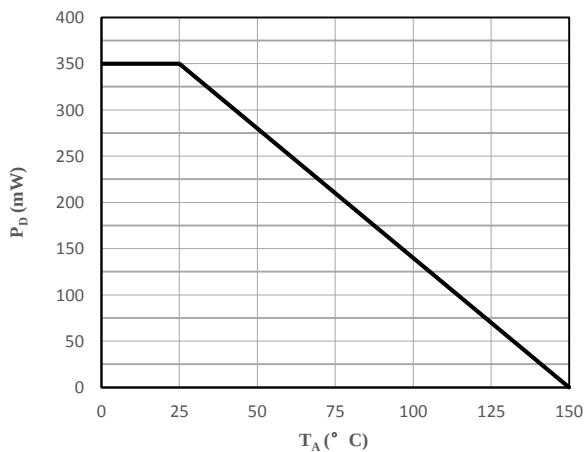
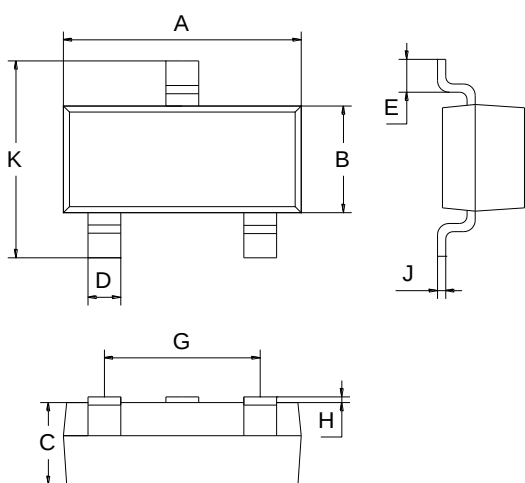


Fig 5 P_D vs. T_A

Marking

Type number	Marking code
MMBTA56-Q1	2GM

SOT-23 Package Outline Dimensions



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.30	0.50
G	1.80	2.00
H	0.00	0.10
J	0.05	0.20
K	2.20	2.60

SOT-23 Soldering Footprint (mm)

