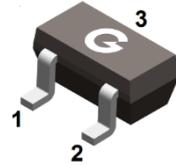
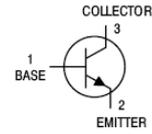


### Features

- Epitaxial planar die construction
- Complimentary to MMBT2907AT
- Ultra-small surface mount package

HF



SOT-523

### Mechanical Data

- Case: SOT-523
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
MMBT2222AT	SOT-523	3000 pcs / Tape & Reel	1P

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V <sub>CB0</sub>	75	V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	40	V
Emitter-Base Breakdown Voltage	V <sub>EB0</sub>	6	V
Continuous Collector Current	I <sub>C</sub>	0.6	A
Peak Collector Current (pulse width ≤ 40μs, δ = 0.35)	I <sub>CM</sub>	1.5	A
Continuous Base Current	I <sub>B</sub>	0.15	A
Peak Base Current	I <sub>BM</sub>	0.2	A

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation <sup>*1</sup>	P <sub>D</sub>	0.15	W
Thermal Resistance Junction-to-Air <sup>*1</sup>	R <sub>θJA</sub>	833	°C/W
Thermal Resistance Junction-to-Air <sup>*2</sup>	R <sub>θJA</sub>	125	°C/W
Thermal Resistance Junction-to-Case <sup>*2</sup>	R <sub>θJC</sub>	70	°C/W
Thermal Resistance Junction-to-Lead <sup>*2</sup>	R <sub>θJL</sub>	50	°C/W
Ambient Temperature	T <sub>A</sub>	-55 ~ +150	°C
Operating Junction Temperature	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

### Electrical Characteristics (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	75	-	-	V
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0	40	-	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 10μA, I <sub>C</sub> = 0	6	-	-	V
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0	-	-	10	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 3V, I <sub>C</sub> = 0	-	-	10	nA
Collector Cut-off Current	I <sub>CEX</sub>	V <sub>CE</sub> = 60V, V <sub>EB(OFF)</sub> = 3.0V	-	-	50	nA
Base Cut-off Current	I <sub>BL</sub>	V <sub>CE</sub> = 60V, V <sub>EB(OFF)</sub> = 3.0V	-	-	50	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.1mA	35	-	-	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	50	-	-	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	75	-	-	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 150mA	100	-	300	-
		V <sub>CE</sub> = 10V, I <sub>C</sub> = 500mA	40	-	-	-
Collector-emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA	-	-	1	V
		I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA	-	-	0.3	V
Base-emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = 500mA, I <sub>B</sub> = 50mA	-	-	2	V
		I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA	-	-	1.2	V
Base-Emitter Voltage	V <sub>BE(on)</sub>	I <sub>C</sub> = 200mA, V <sub>CE</sub> = 10V	-	-	1	V
Transition Frequency	f <sub>T</sub>	I <sub>C</sub> = 20mA, V <sub>CE</sub> = 20V f = 100MHz	300	-	-	MHz
Collector Output Capacitance	C <sub>OBO</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	-	-	8	pF
Noise Figure	N <sub>F</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 100μA R <sub>S</sub> = 1.0KΩ, f = 1.0kHz	-	-	4.0	dB
Delay Time	t <sub>d</sub>	V <sub>CC</sub> = 30V, I <sub>C</sub> = 150mA	-	-	10	ns
Rise Time	t <sub>r</sub>	V <sub>BE(OFF)</sub> = -0.5V, I <sub>B1</sub> = 15mA	-	-	25	ns
Storage Time	t <sub>s</sub>	V <sub>CC</sub> = 30V, I <sub>C</sub> = 150mA	-	-	225	ns
Fall Time	t <sub>f</sub>	I <sub>B1</sub> = -I <sub>B2</sub> = 15mA	-	-	60	ns

Notes:

- Device mounted on a minimum recommended pad layout with 1oz copper that is on a single-sided 1.6mm FR4 PCB; the device is measured under still air conditions whilst operating in a steady-state.
- The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper

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

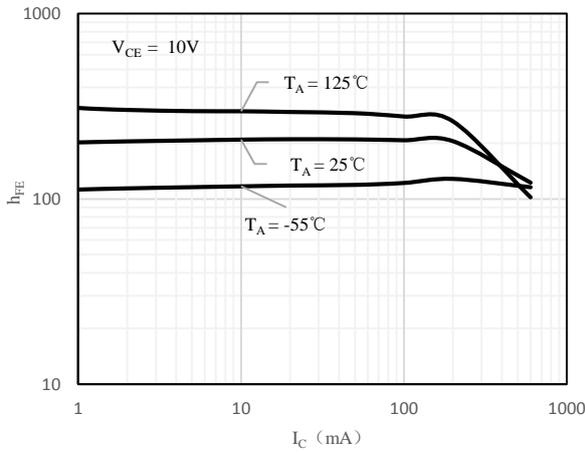


Fig 1  $h_{FE}$  vs.  $I_C$

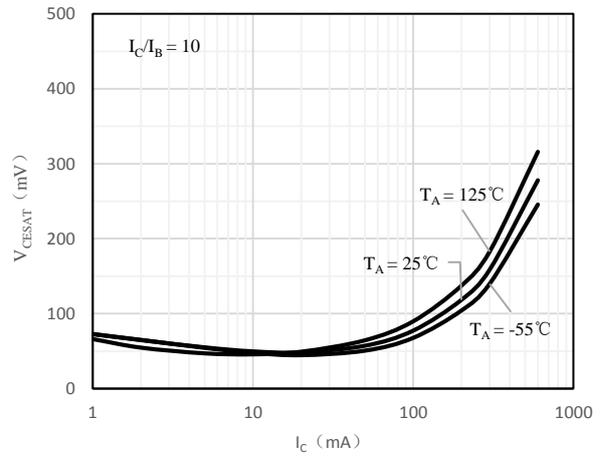


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

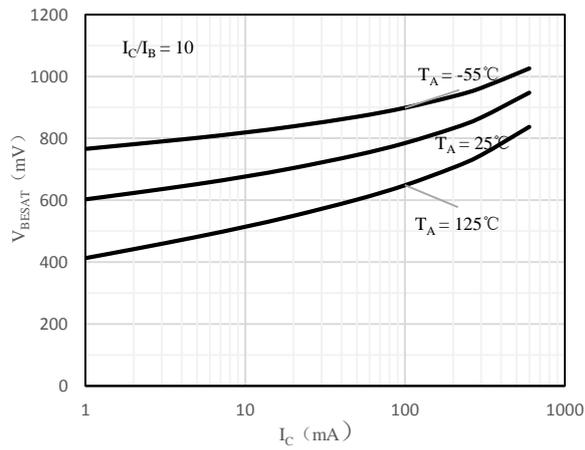


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

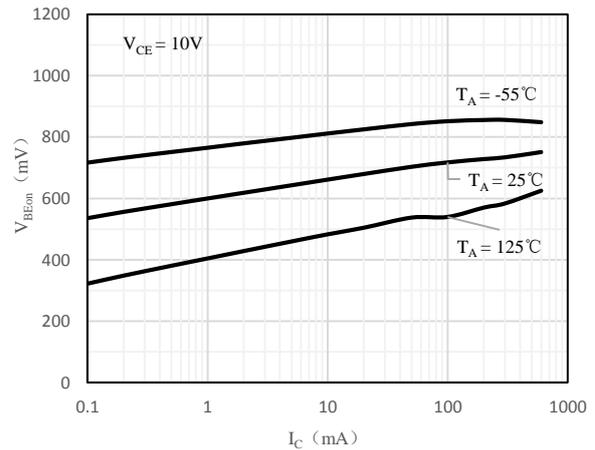


Fig 4  $V_{BE(ON)}$  vs.  $I_C$

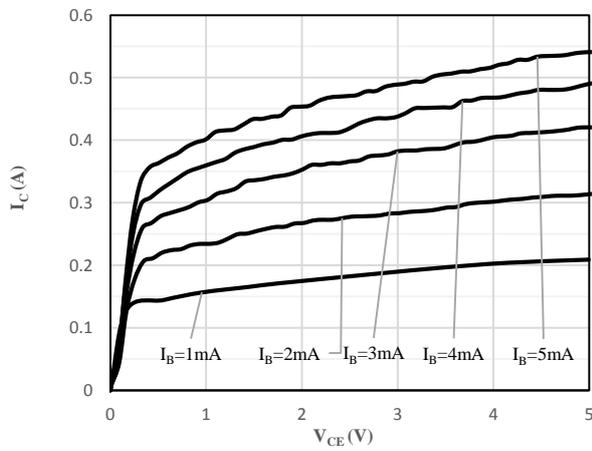


Fig 5  $I_C$  vs.  $V_{CE}$

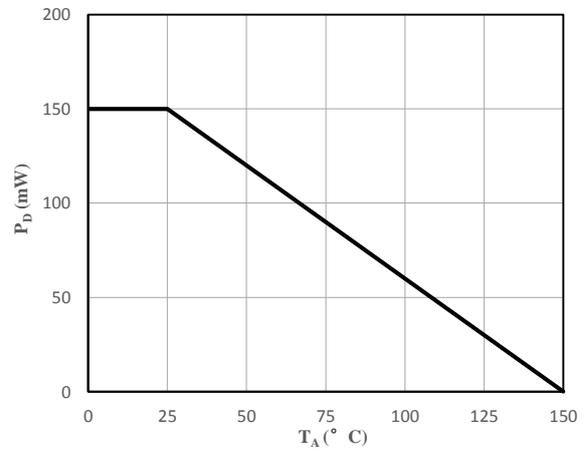


Fig 6  $P_D$  vs.  $T_A$

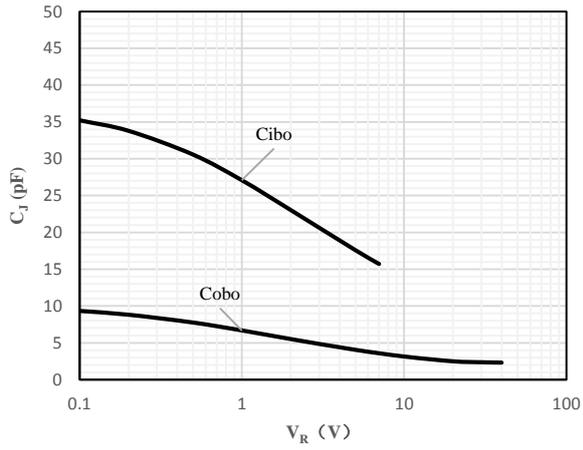
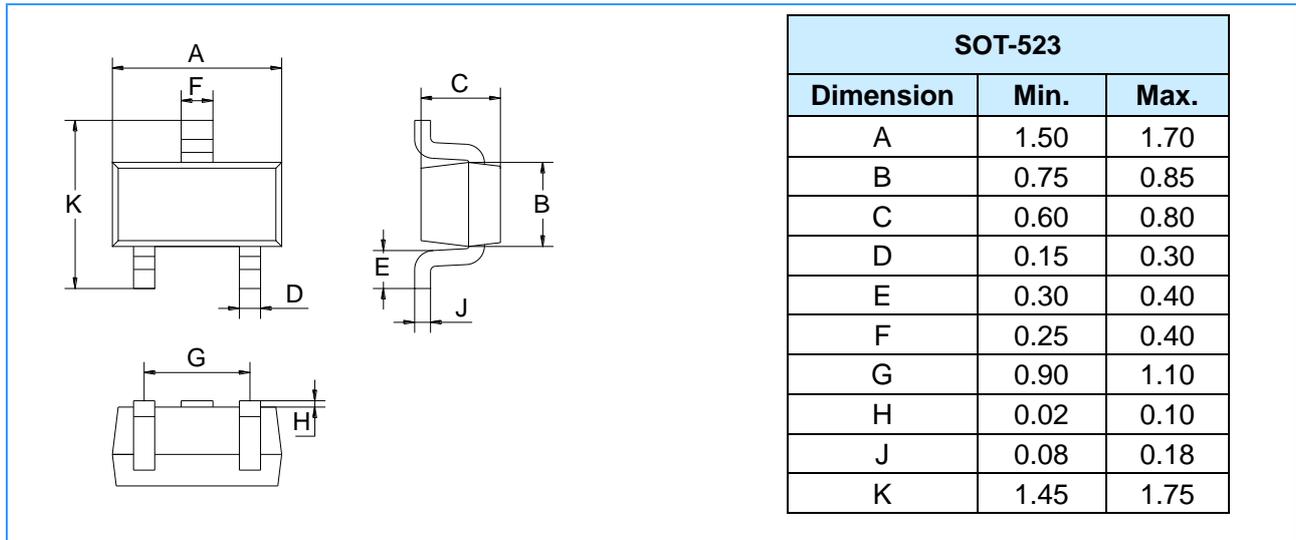
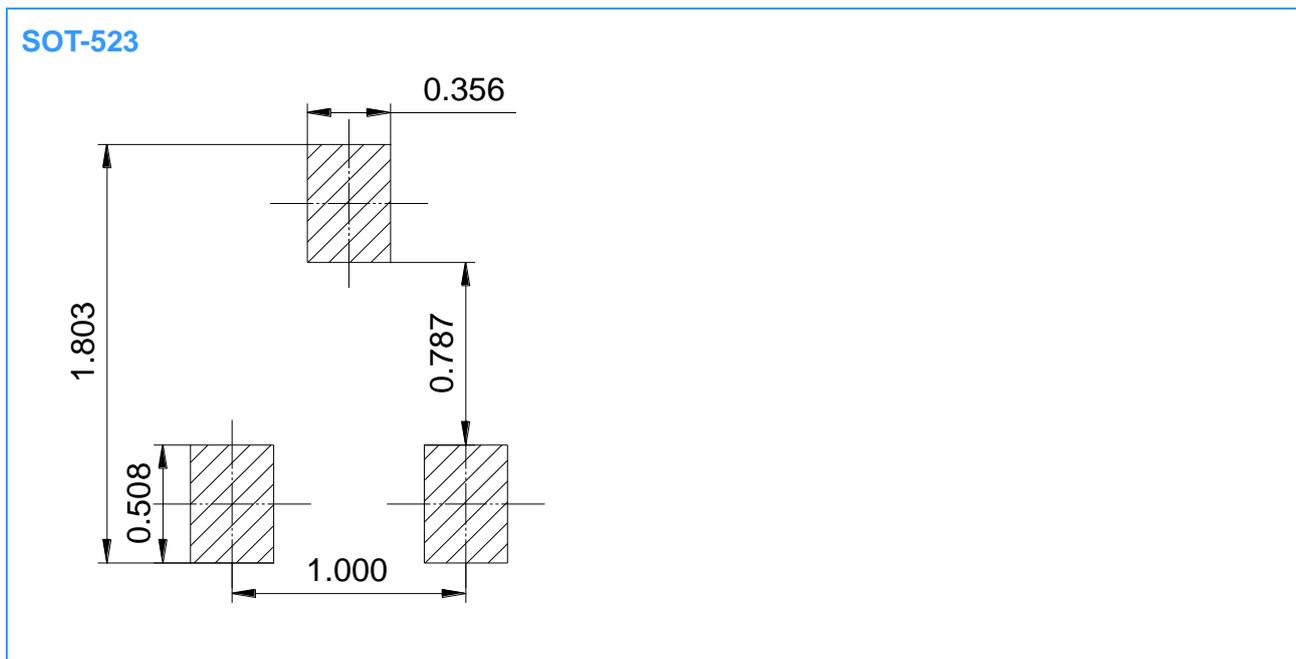


Fig 7  $C_J$  vs.  $V_R$

### Package Outline Dimensions (Unit: mm)



### Mounting Pad Layout (Unit: mm)



### IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.