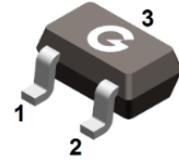
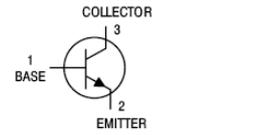


### Features

- Epitaxial planar die construction
- Complimentary to MMSTA92
- Ultra-small surface mount package
- RoHS compliant with Halogen-free

HF



SOT-323

### Mechanical Data

- Case: SOT-323
- 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
MMSTA42	SOT-323	3000 pcs / Tape & Reel	K3M

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V <sub>CBO</sub>	300	V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	300	V
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	6	V
Continuous Collector Current	I <sub>C</sub>	0.2	A
Peak Collector Current (t <sub>p</sub> ≤ 1ms)	I <sub>CM</sub>	0.4	A

### Thermal Characteristics

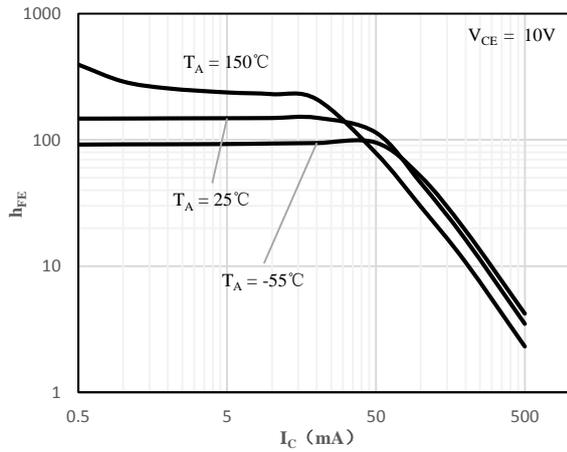
Parameter	Symbol	Value	Unit
Power Dissipation (T <sub>A</sub> = 25°C)	P <sub>D</sub>	200	mW
Thermal Resistance Junction-to-Air <sup>*1</sup>	R <sub>θJA</sub>	220	°C/W
Thermal Resistance Junction-to-Case <sup>*1</sup>	R <sub>θJC</sub>	120	°C/W
Thermal Resistance Junction-to-Lead <sup>*1</sup>	R <sub>θJL</sub>	170	°C/W
Operating junction Temperature	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

Note 1: The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper

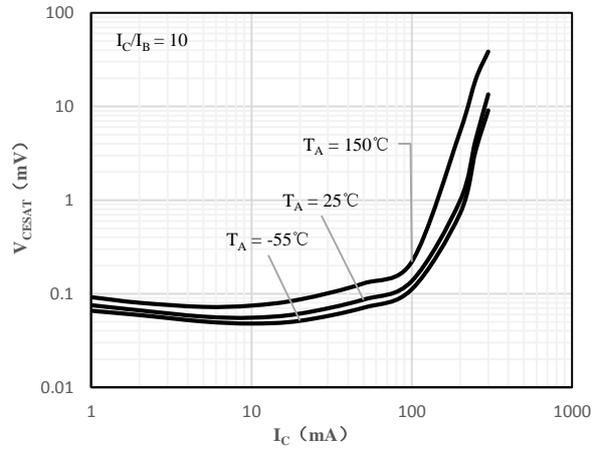
### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	300	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	300	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	6	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 200\text{V}, I_E = 0$	-	-	100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 6\text{V}, I_C = 0$	-	-	100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	25	-	-	-
		$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	40	-	-	-
		$V_{CE} = 10\text{V}, I_C = 30\text{mA}$	40	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.5	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.9	V
Transition Frequency	$f_T$	$I_C = 10\text{mA}, V_{CE} = 20\text{V}$	50	-	-	MHz
Collector Output Capacitance	$C_{OBO}$	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	-	1.5	-	pF

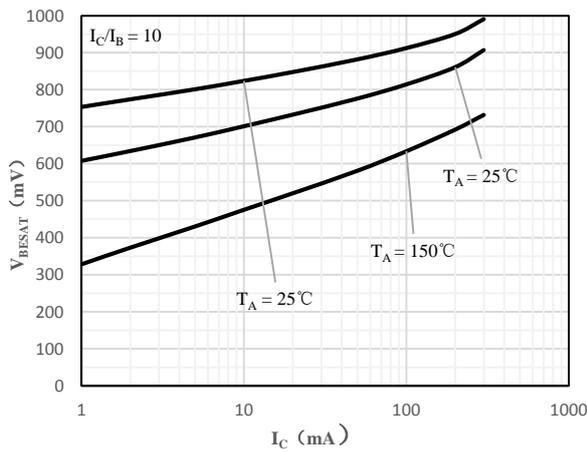
**Ratings and Characteristics Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



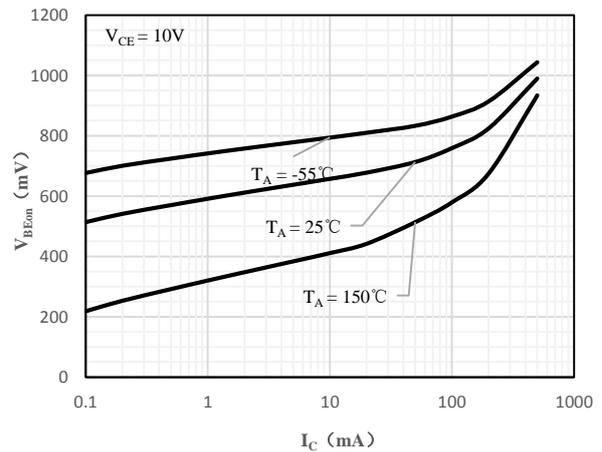
**Fig 1**  $h_{FE}$  vs.  $I_C$



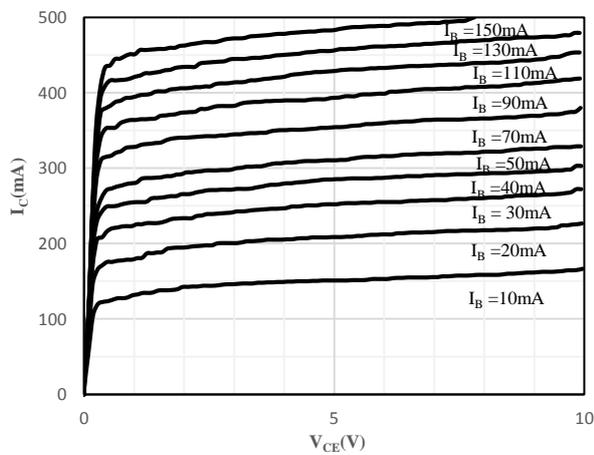
**Fig 2**  $V_{CE(sat)}$  vs.  $I_C$



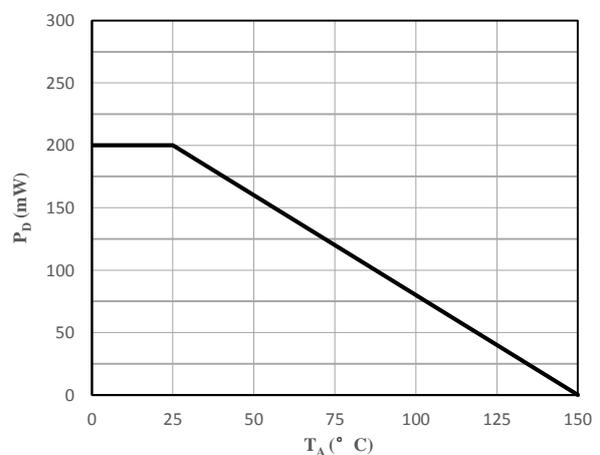
**Fig 3**  $V_{BE(sat)}$  vs.  $I_C$



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



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



**Fig 6**  $P_D$  vs.  $T_A$

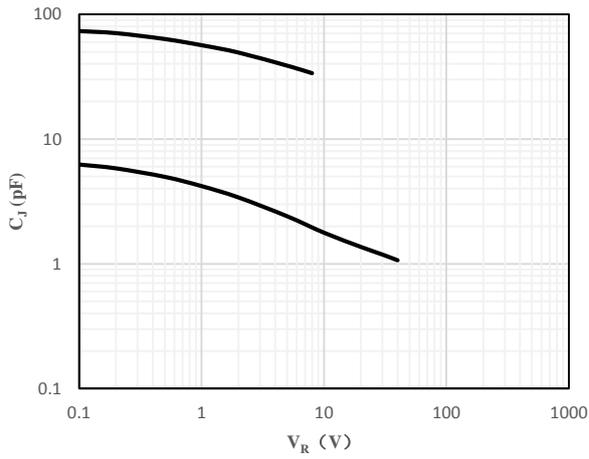
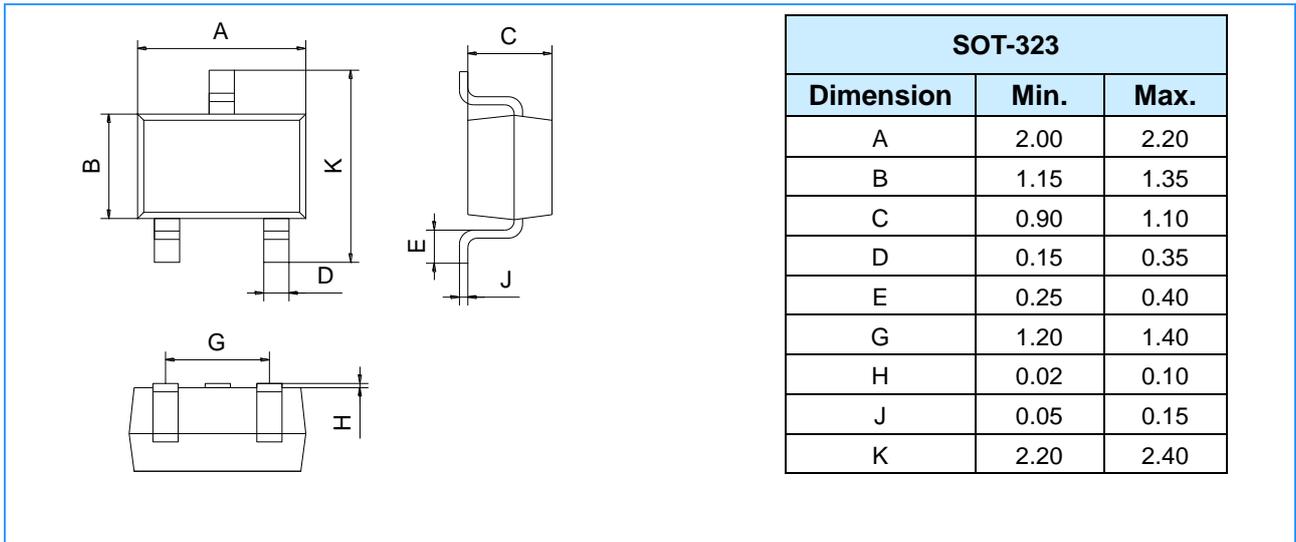


Fig 7  $C_j$  vs.  $V_R$

**Package Outline Dimensions** (Unit: mm)



**Mounting Pad Layout** (Unit: mm)

