NPN Silicon Epitaxial Planar Transistor

T2SC4102

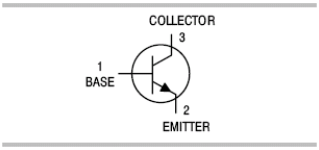
Features

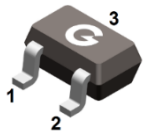
- Excellent h_{FE} linearity
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF

Mechanical Data

- Case: SOT-323
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208





SOT-323

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
T2SC4102-P	SOT-323	3000 pcs / Tape & Reel	TP
T2SC4102-R	SOT-323	3000 pcs / Tape & Reel	TR
T2SC4102-S	SOT-323	3000 pcs / Tape & Reel	TS

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Breakdown Voltage	V_{CEO}	120	V
Emitter-Base Breakdown Voltage	V_{EBO}	5	V
Collector Current (Continuous)	I_C	50	mA
Collector Current (Peak)	I_{CM}	100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.2	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	625	°C/W
Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 50μA, I_E = 0	120	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	120	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 50μA, I_C = 0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 100V, I_E = 0	-	-	0.5	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 4V, I_C = 0	-	-	0.5	μA
DC Current Gain	h_{FE}	V_{CE} = 6V, I_C = 2mA	120	-	560	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	0.5	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	1	V
Collector-base Output Capacitance	C_{OBO}	V_{CB} = 12V, f = 1MHz, I_E = 0	-	2.5	-	pF
Current-Gain— Bandwidth Product	f_T	I_C = 2mA, V_{CE} = 12V f = 100MHz	-	140	-	MHz

Classification of h_{FE}

Rank	P	R	S
Range	120-270	180-390	270-560
Marking	TP	TR	TS

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

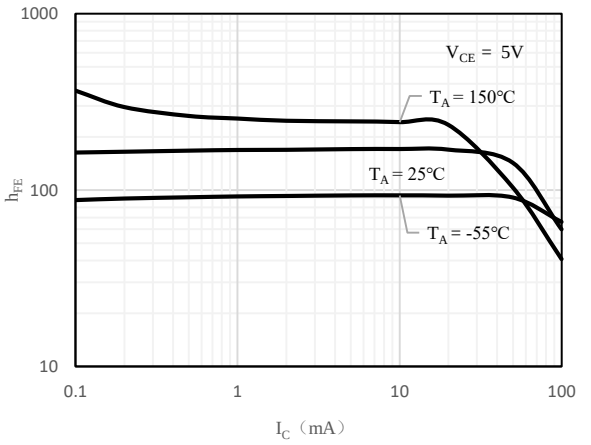


Fig 1 h_{FE} vs. I_C

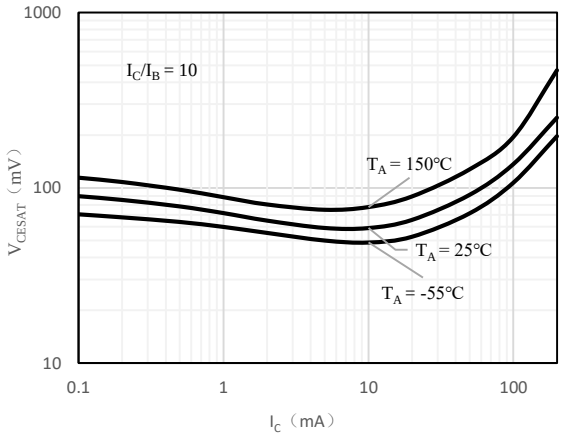


Fig 2 $V_{CE(sat)}$ vs. I_C

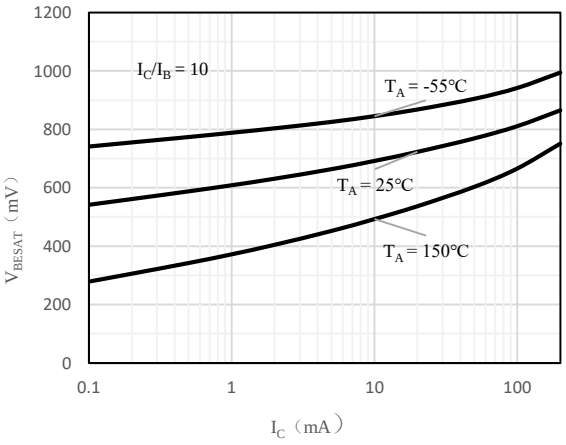


Fig 3 $V_{BE(sat)}$ vs. I_C

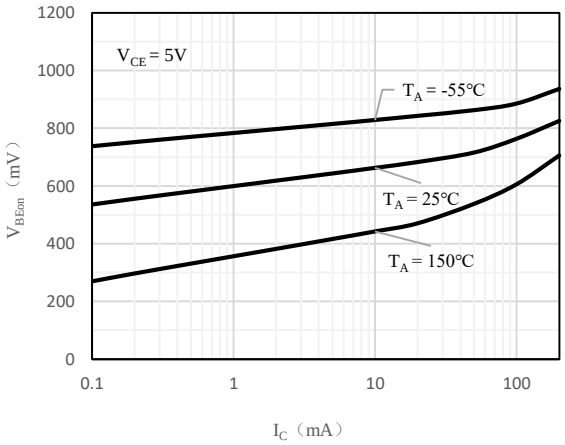


Fig 4 $V_{BE(ON)}$ vs. I_C

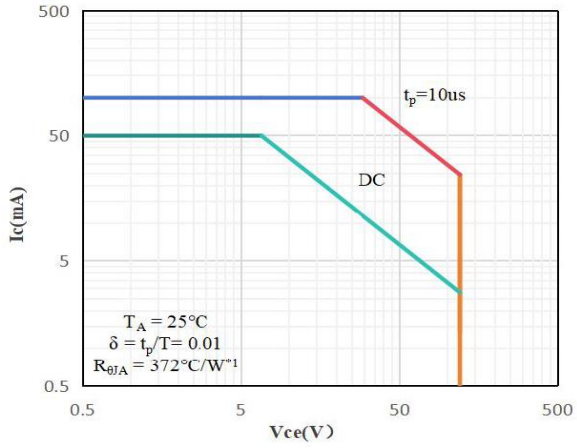
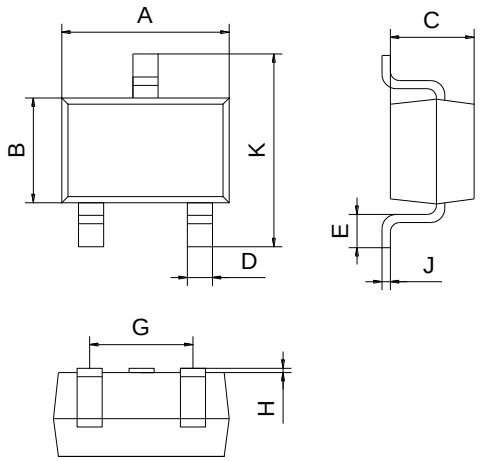


Fig 5 Safe Operating Area

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

Package Outline Dimensions (Unit: mm)



SOT-323		
Dimension	**Min.**	**Max.**
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-323