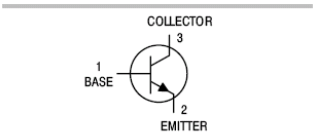
NPN Silicon Epitaxial Planar Transistor

MMST5551

Features

- Epitaxial planar die construction
- Complementary PNP type available(MMST5401)
- 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
MMST5551	SOT-323	3000 pcs / Tape & Reel	K4N

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Breakdown Voltage	V_{CEO}	160	V
Emitter-Base Breakdown Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	0.6	A
Peak Collector Current (t_p ≤1ms)	I_{CM}	0.8	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C)	P_D	0.2	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	280	°C/W
Thermal Resistance Junction-to-Case *1	$R_{\theta JC}$	160	°C/W
Thermal Resistance Junction-to-Lead *1	$R_{\theta JL}$	190	°C/W
Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

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

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 = 100μA, I_E = 0	180	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 0.1mA, I_B = 0	160	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 120V, I_E = 0	-	-	50	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 4V, I_C = 0	-	-	50	nA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 1mA	80	-	-	-
		V_{CE} = 5V, I_C = 10mA	80	-	250	-
		V_{CE} = 5V, I_C = 50mA	30	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 50mA, I_B = 5mA	-	-	0.2	V
		I_C = 10mA, I_B = 1mA	-	-	0.15	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	1	V
		I_C = 50mA, I_B = 5mA	-	-	1	V
Collector-base Output Capacitance	C_{cbo}	V_{CB} = 10V, f = 1MHz, I_E = 10mA	-	-	6	pF
Current-Gain— Bandwidth Product	f_T	I_C = 10mA, V_{CE} = 10V f = 100MHz	80	-	-	MHz

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

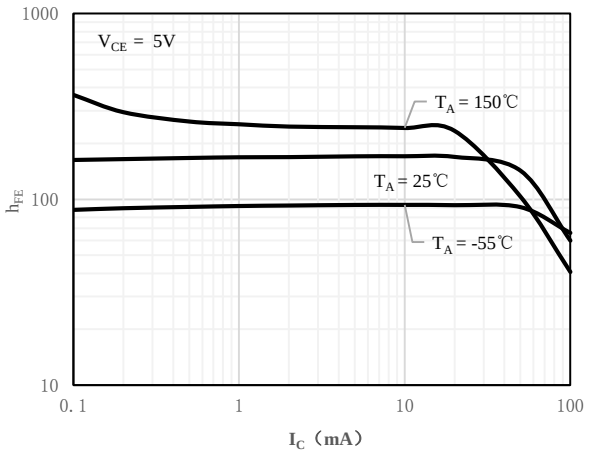


Fig 1 h_{FE} vs. I_C

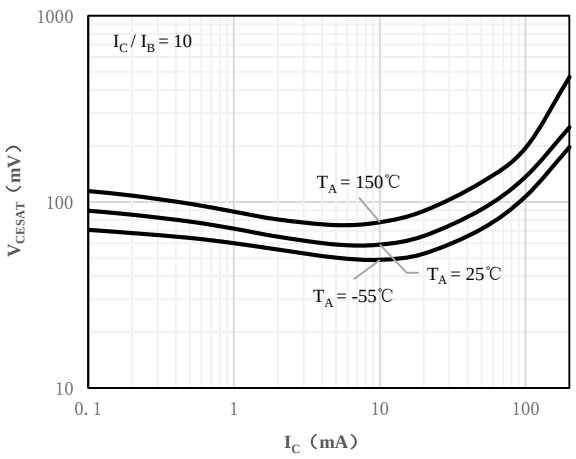


Fig 2 $V_{CE(sat)}$ vs. I_C

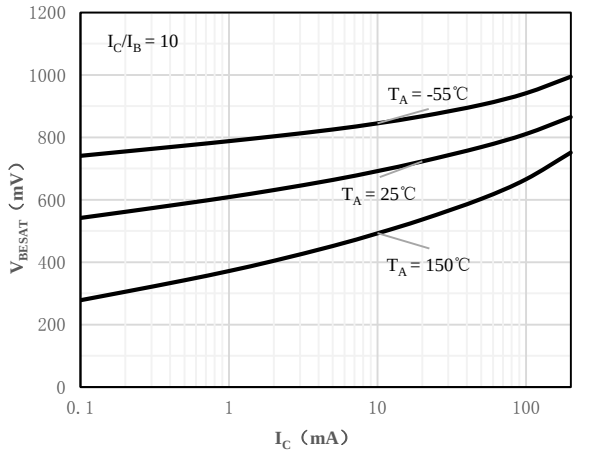


Fig 3 $V_{BE(sat)}$ vs. I_C

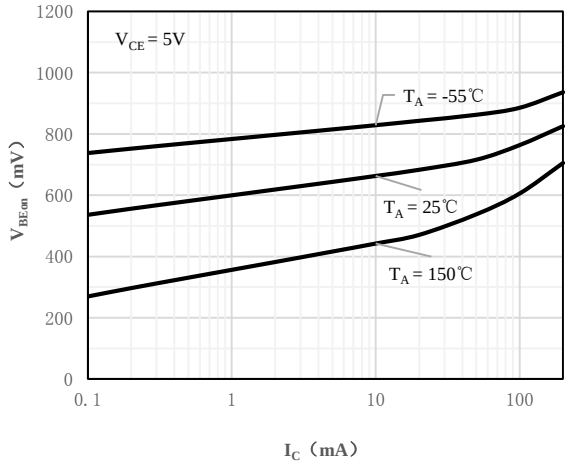


Fig 4 $V_{BE(ON)}$ vs. I_C

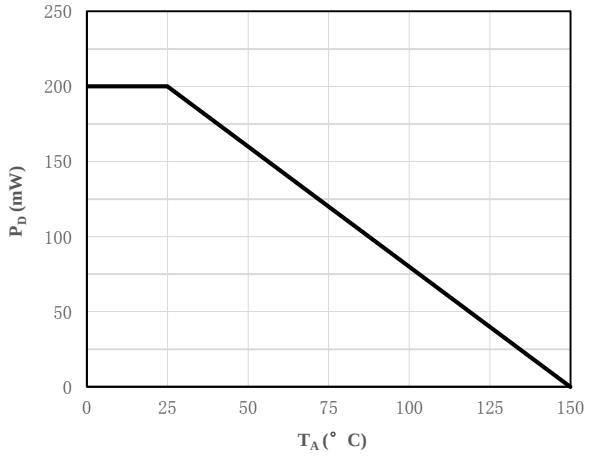
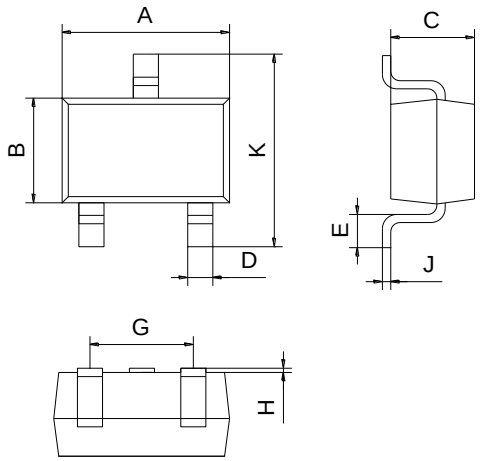


Fig 5 P_D vs. T_A

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

