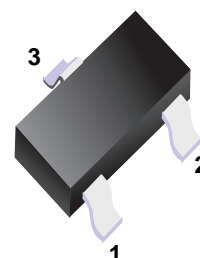


## NPN Transistor

### ■ Features

- Small Surface Mount Package
- Ideal for Medium Power Amplification and Switching
- Complementary to MMST5401



- 1.Base
- 2.Emitter
- 3.Collector

### ■ Simplified outline(SOT-323)

### ■ Marking

Marking	K4N
---------	-----

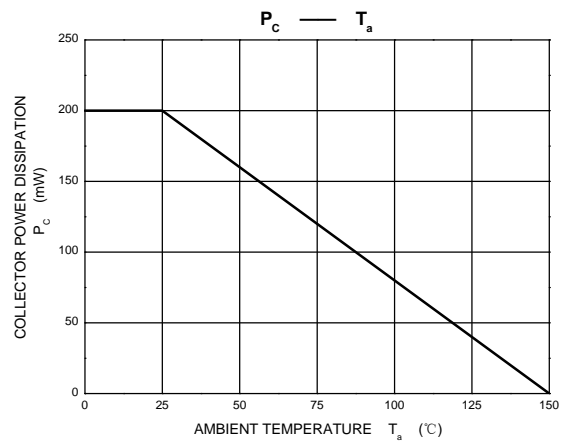
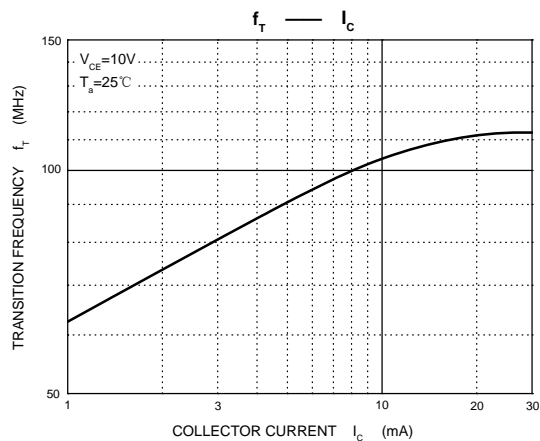
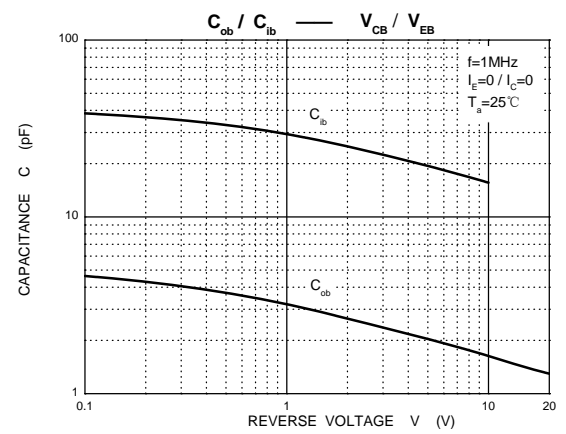
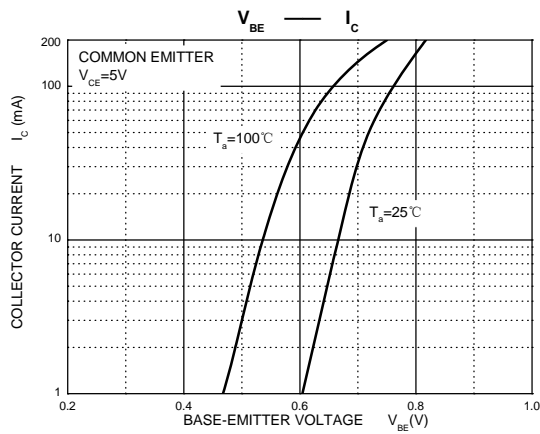
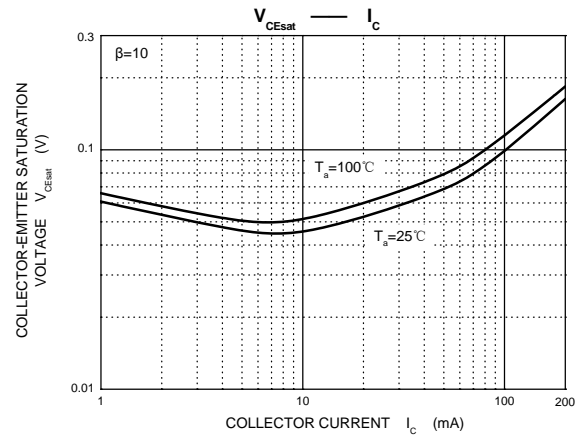
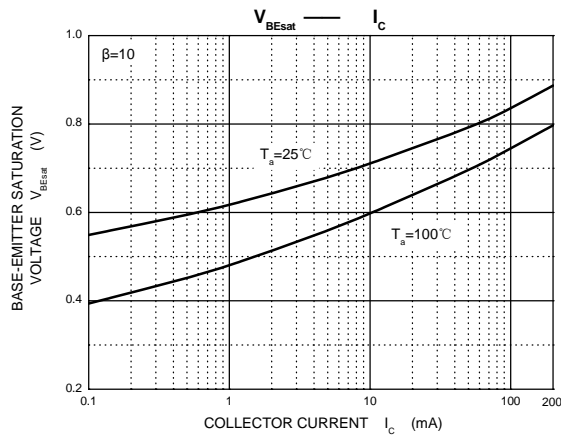
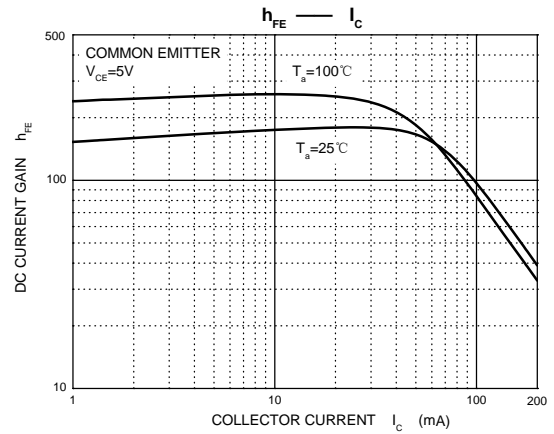
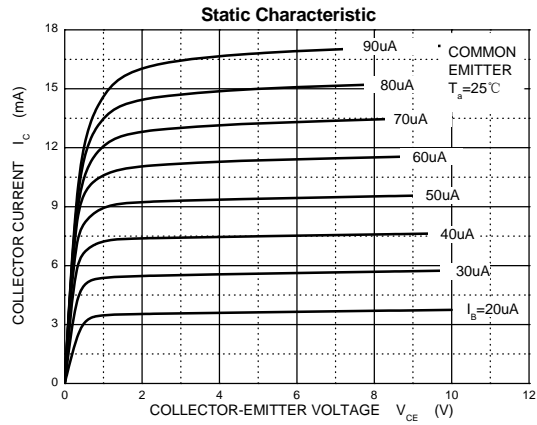
### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	180	V
Collector - Emitter Voltage	V <sub>CE0</sub>	160	
Emitter - Base Voltage	V <sub>EB0</sub>	6	
Collector Current - Continuous	I <sub>c</sub>	600	mA
Collector Power Dissipation	P <sub>c</sub>	200	mW
Thermal Resistance From Junction To Ambient	R <sub>θJA</sub>	625	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to 150	

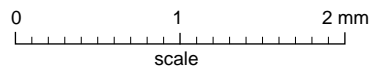
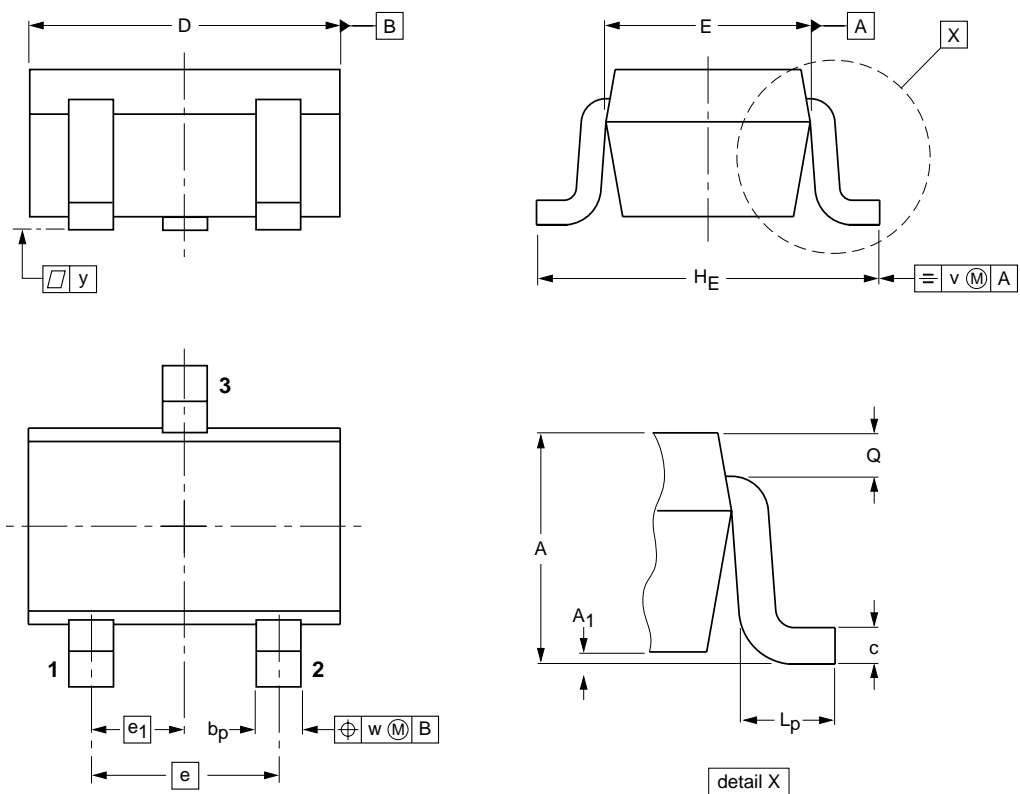
### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V <sub>CB0</sub>	I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	180			V
Collector- emitter breakdown voltage	V <sub>CE0</sub>	I <sub>c</sub> = 1 mA, I <sub>B</sub> = 0 (Note.1)	160			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0	6			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = 120 V, I <sub>E</sub> = 0			50	nA
Emitter cut-off current	I <sub>EB0</sub>	V <sub>EB</sub> = 4V, I <sub>C</sub> =0			50	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =10 mA, I <sub>B</sub> =1mA			0.15	V
		I <sub>C</sub> = 50 mA, I <sub>B</sub> = 5mA			0.2	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =10 mA, I <sub>B</sub> =1mA			1	
		I <sub>C</sub> = 50 mA, I <sub>B</sub> = 5mA			1	
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1mA	80			
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA	80		300	
	h <sub>FE(3)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 50mA	30			
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f=1MHz			6	pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f=100MHz	100		300	MHz

Note.1: Pulse test: pulse width ≤ 300 us, duty cycle ≤ 2 %.



■ SOT-323



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2