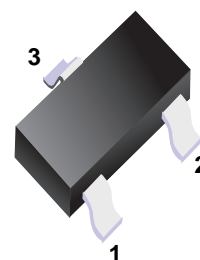


## PNP Transistor

### ■ Features

- Collector Current Capability  $I_c = -0.2A$
- Collector Emitter Voltage  $V_{CE0} = -40V$



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

### ■ Simplified outline(SOT-323)

### ■ Marking

Marking	K5N
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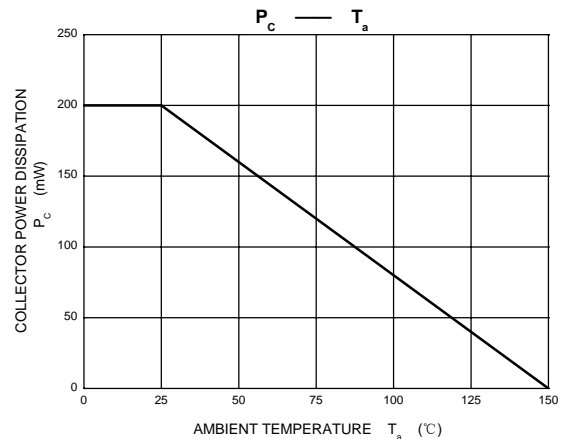
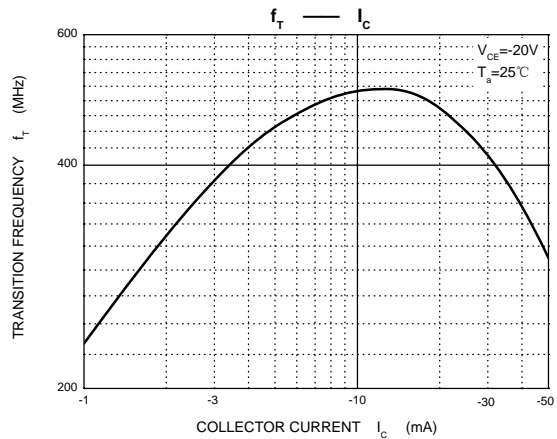
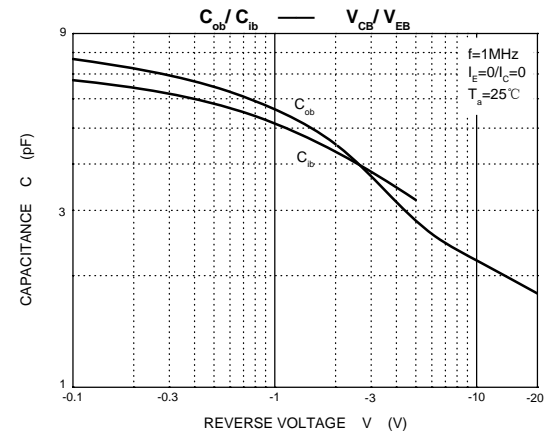
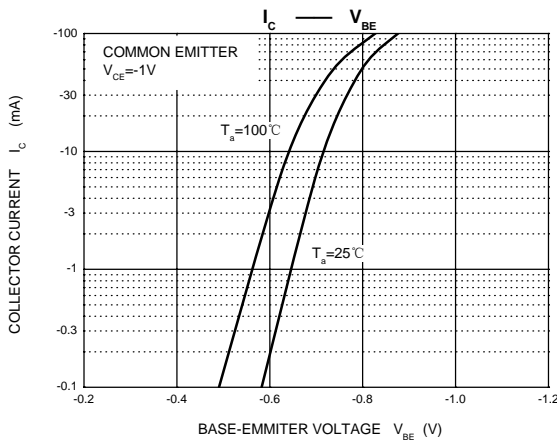
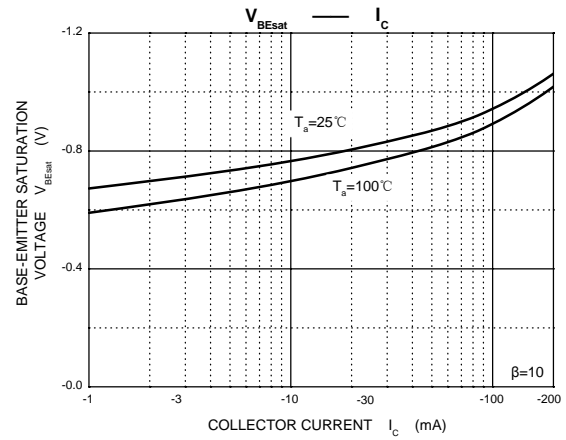
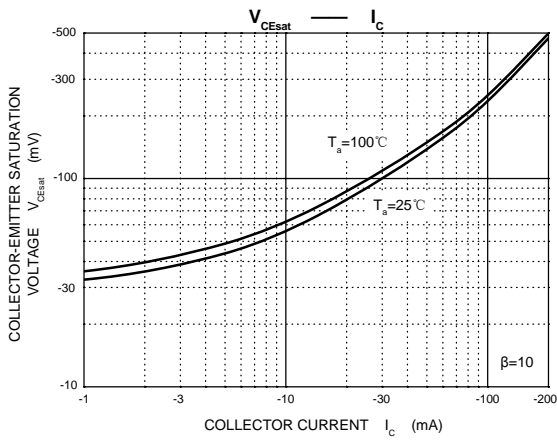
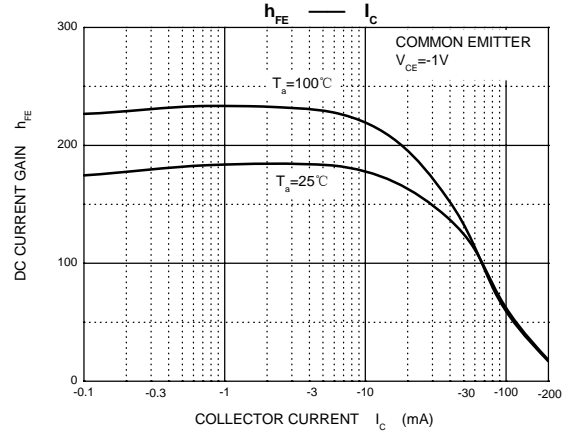
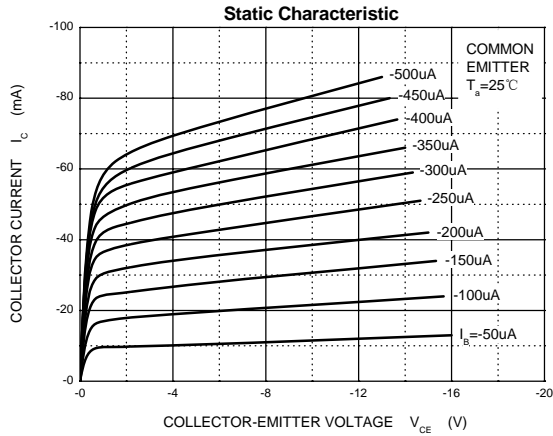
### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	-40	V
Collector - Emitter Voltage	$V_{CE0}$	-40	
Emitter - Base Voltage	$V_{EB0}$	-5	
Collector Current - Continuous	$I_c$	-200	mA
Collector Power Dissipation	$P_c$	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to 150	

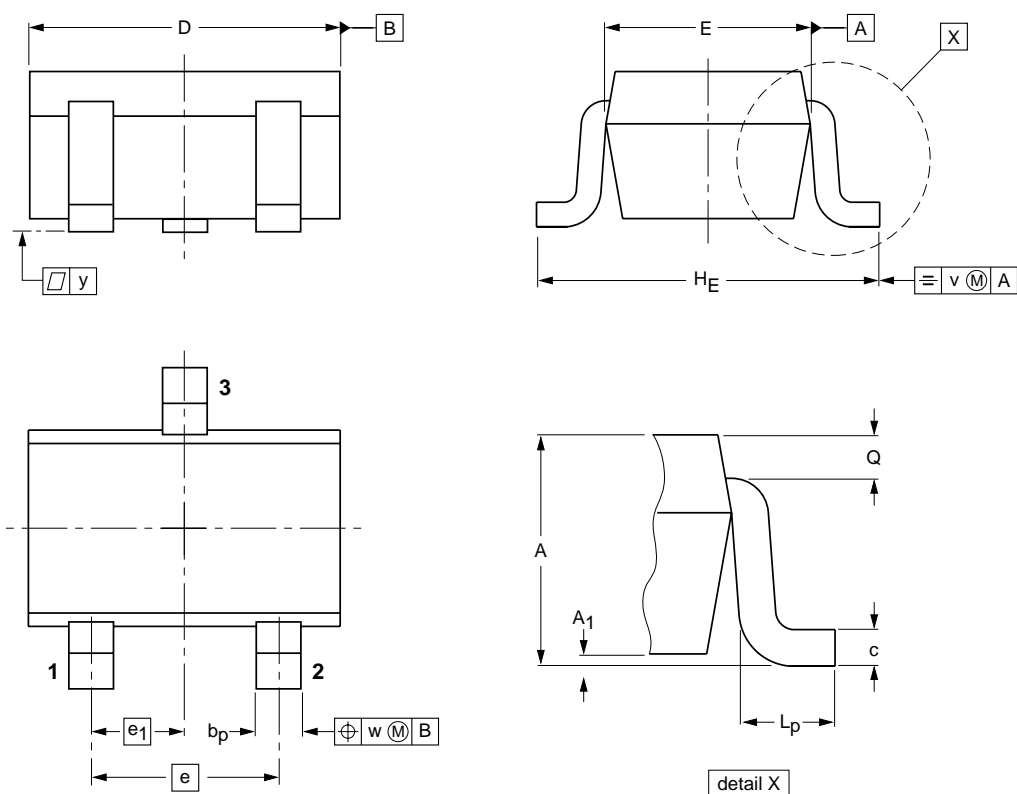
**■ Electrical Characteristics Ta = 25°C**

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 (Note.1)	-40			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = -1 mA, I <sub>B</sub> = 0 (Note.1)	-40			
Emitter - base breakdown voltage	V <sub>EB0</sub>	I <sub>E</sub> = -100 μA, I <sub>C</sub> = 0 (Note.1)	-5			
Collector-base cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> = -40 V, I <sub>E</sub> = 0 (Note.1)			-100	nA
Base cut-off current	I <sub>BL</sub>	V <sub>CE</sub> = -30 V, V <sub>BE(off)</sub> = -3V (Note.1)			-50	
Collector- emitter cut-off current	I <sub>CEX</sub>	V <sub>CE</sub> = -30 V, V <sub>BE(off)</sub> = -3V			-50	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5V, I <sub>C</sub> =0			-100	
Collector-emitter saturation voltage (Note.1)	V <sub>CE(sat)</sub>	I <sub>C</sub> =-10 mA, I <sub>B</sub> =-1 mA			-0.2	V
		I <sub>C</sub> =-50 mA, I <sub>B</sub> =-5 mA			-0.3	
Base - emitter saturation voltage (Note.1)	V <sub>BE(sat)</sub>	I <sub>C</sub> =-10 mA, I <sub>B</sub> =-1 mA			-0.85	
		I <sub>C</sub> =-50 mA, I <sub>B</sub> =-5 mA			-0.95	
DC current gain (Note.1)	h <sub>FE(1)</sub>	V <sub>CE</sub> = -1V, I <sub>C</sub> = -100 μA	60			
	h <sub>FE(2)</sub>	V <sub>CE</sub> = -1V, I <sub>C</sub> = -1 mA	80			
	h <sub>FE(3)</sub>	V <sub>CE</sub> = -1V, I <sub>C</sub> = -10 mA	100		300	
Delay time	t <sub>d</sub>	V <sub>CC</sub> =-3V, V <sub>BE(off)</sub> =-0.5V I <sub>C</sub> =-10mA, I <sub>B1</sub> =-1mA			35	nS
Rise time	t <sub>r</sub>				35	
Storage time	t <sub>s</sub>				225	
Fall time	t <sub>f</sub>				75	
Collector input capacitance	C <sub>ib</sub>	V <sub>EB</sub> = -0.5V, I <sub>E</sub> = 0, f=1MHz			10	pF
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = -5V, I <sub>E</sub> = 0, f=1MHz			4.5	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -20V, I <sub>C</sub> = -10mA, f=100MHz	250			MHz

Note.1: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2.0%.



■ 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