

NH5551KW



NPN UNIVERSAL SMALL SIGNAL TRANSISTOR

V_{CBO}: 180 Volts

I_C: 600 mA

Package: SOT-323

FEATURES

- NPN General-Purpose Small Signal Transistor.
- Small Temperature Drift And Low Cost.
- Extremely Low Saturation Voltage Drop
- The Summary Capacitor Is Suitable For High-Frequency Applications.

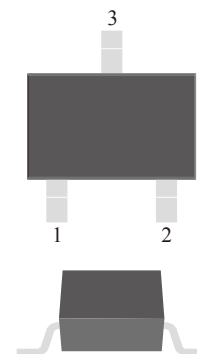
MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94V-0 Flammability Rating.
The Material Of Product Compliance With RoHS Requirements.
- **Mounting Position:** Any.
- **Pin and polarity:**As Shown In The Figure On The Right.

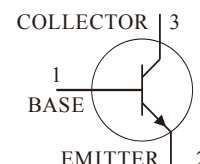
Device DATA

Device	NH5551KW
Marking	K4N

Diagram:



Polarity:



Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Collector-Base Voltage		V _{CBO}	180	V
Collector-Emitter Voltage		V _{CEO}	160	V
Emitter-Base Voltage		V _{EBO}	6	V
Collector Current		I _C	600	mA

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Total Device Power Dissipation		P _D	200	mW
Derating Factor	above 25°C	D _F	1.6	mW/°C
Operating Junction Temperature Range		T _J	-55 to 150	°C
Storage Temperature Range		T _{STD}	-55 to 150	
Thermal Resistance From Junction To Ambient With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz.Copper	R _{θJA}	625	°C/W

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ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$I_C = 10 \text{ uAdc}, I_E = 0$	$V_{(BR)CBO}$	180	-	-	V
Collector-Emitter Breakdown Voltage	$I_C = 1 \text{ mAdc}, I_B = 0$	$V_{(BR)CEO}$	160	-	-	V
Emitter-Base Breakdown Voltage	$I_E = 10 \text{ uAdc}, I_C = 0$	$V_{(BR)EBO}$	6	-	-	V
Emitter Cut-off Current	$V_{CB} = 120 \text{ Vdc}, I_E = 0$	I_{CBO}	-	-	50	nA
Collector Cut-off Current	$V_{EB} = 4 \text{ Vdc}, I_C = 0$	I_{EBO}	-	-	50	nA
ON CHARACTERISTICS						
DC Current Gain	$V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$	$H_{FE(1)}$	80	-	-	-
	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$	$H_{FE(2)}$	100	-	300	
	$V_{CE} = 5 \text{ V}, I_C = 50 \text{ mA}$	$H_{FE(3)}$	50	-	-	
Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$	$V_{CE(Sat)}$	-	-	0.15	V
	$I_C = 50 \text{ mA}, I_B = 5 \text{ mA}$		-	-	0.2	
Base-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, V_{CE} = 1 \text{ V}$	$V_{BE(Sat)}$	-	-	1	V
	$I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}$		-	-	1	
Transition Frequency	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$ $f = 100 \text{ MHz}$	f_T	100	-	300	MHz
Output Capacitance	$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$ $I_E = 0$	C_{obo}	-	-	6	PF

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Typical Characteristics Curves

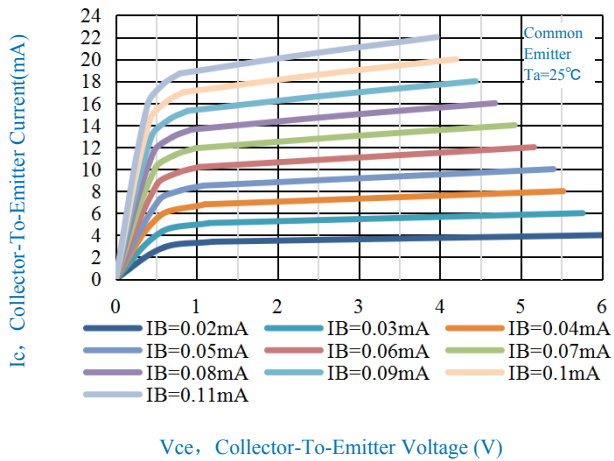


Fig.1-Static Characteristics

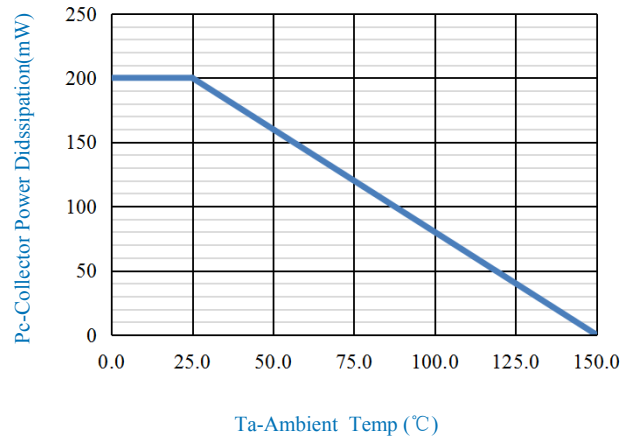


Fig.2-Collector Power Dissipation Vs. T_a

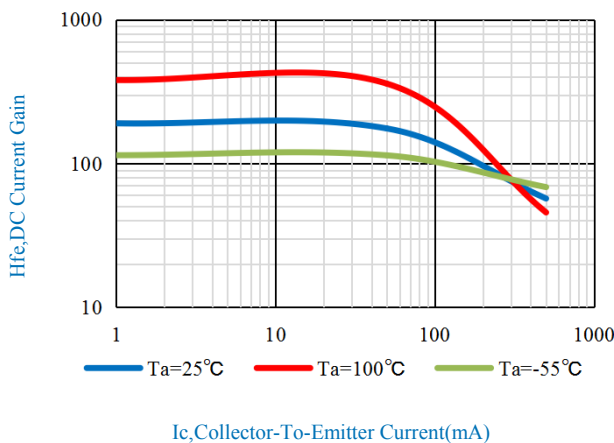


Fig.3-Dc Current Gain Vs. Collector Current

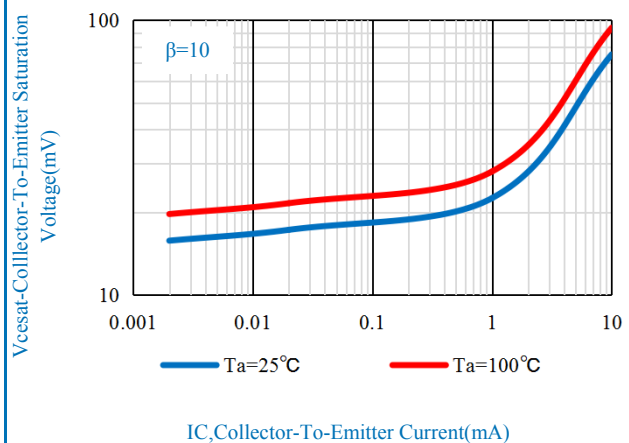


Fig.4-Base-To-Emitter Saturation Voltage Vs. Collector Current

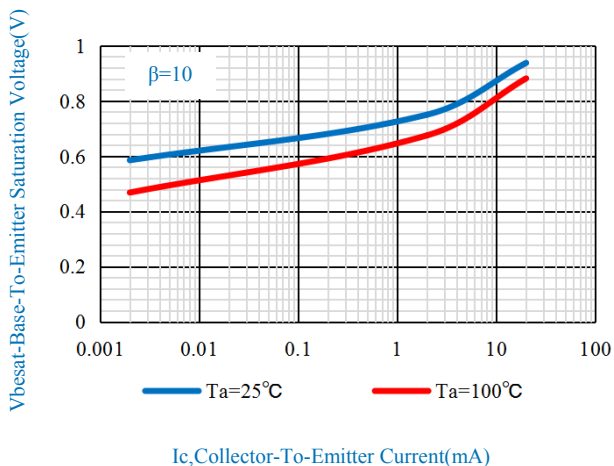


Fig.5-Base-To-Emitter Saturation Voltage Vs. Collector Current

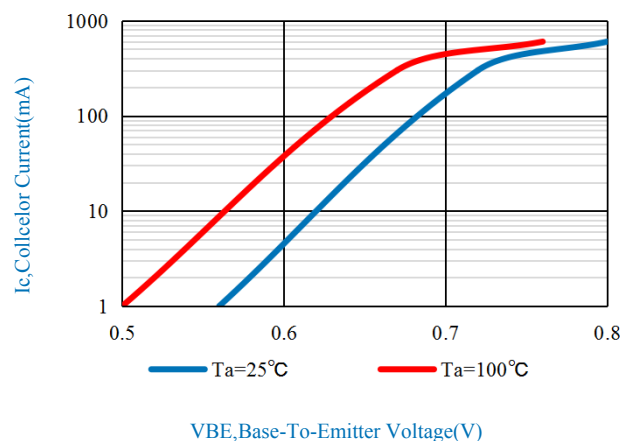


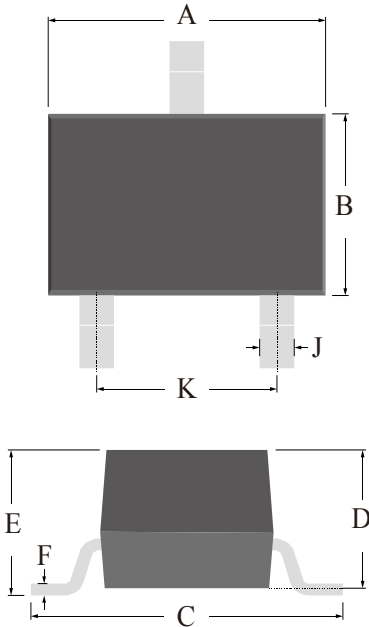
Fig.6-Base-To-Emitter Voltage Characteristics

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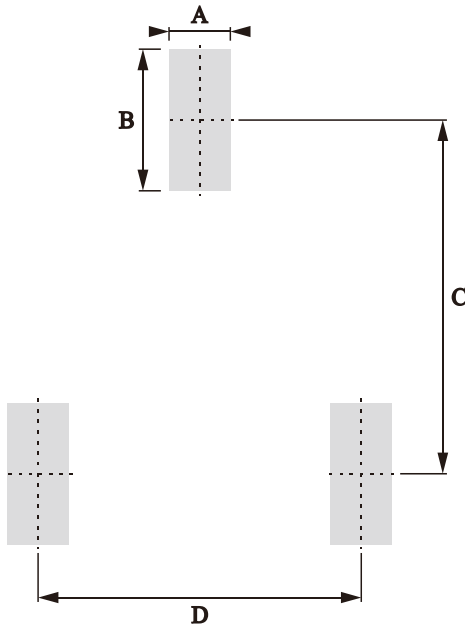
OUTLINE DRAWINGS



SOT-323

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.80	-	2.20	0.0709	-	0.0866
B	1.10	-	1.40	0.0433	-	0.0551
C	2.05	-	2.45	0.0807	-	0.0965
D	0.80	-	1.10	0.0315	-	0.0433
E	0.85	-	1.15	0.0335	-	0.0453
F	0.08	-	0.18	0.0031	-	0.0071
J	0.15	-	0.35	0.0059	-	0.0138
K	1.10	-	1.50	0.0433	-	0.0591

RECOMMEDND LAYOUT DRAWINGS



SOT-323

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	0.60	-	-	0.0000	-
B	-	0.80	-	-	0.0315	-
C	-	2.00	-	-	0.0787	-
D	-	1.40	-	-	0.0551	-

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MARKING INFORMATION

MARKING INSTRUCTIONS



K4N=mark

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOT-323	P1	0.0291	7" Reel	3000	45000	180000

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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow

	Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
	Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
	Preheat-Temperature Min (T _S min) -Temperature Max (T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
	Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
	Peak Temperature(T _P)	240 +0/-5 °C	260 +0/-5 °C
	Time within 5°C of actual peak temperature (t _p)	10-30 seconds	20-40 seconds
	Ramp down rate	6°C/second max.	6°C/second max.
	Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		
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