KEC

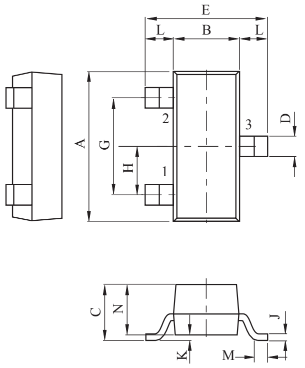
SEMICONDUCTOR
TECHNICAL DATA

KRA110S~KRA114S
EPITAXIAL PLANAR PNP TRANSISTOR

SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

FEATURES

- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.
- Suffix **U** : Qualified to AEC-Q101.
  ex) KRA110S-RTK/H**U**



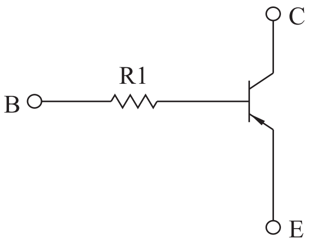
Unit : mm

DIM	MILLIMETERS
A	2.93 ± 0.20
B	1.30+0.20/-0.15
C	1.0+0.3/-0.1
D	0.40+0.15/-0.05
E	2.40+0.30/-0.20
G	1.90 ± 0.10
H	0.95 ± 0.10
J	0.13+0.10/-0.05
K	0.00 ~ 0.10
L	0.55 ± 0.10
M	0.20 MIN
N	1.00+0.20/-0.10

1. EMITTER
2. BASE
3. COLLECTOR

SOT-23

EQUIVALENT CIRCUIT



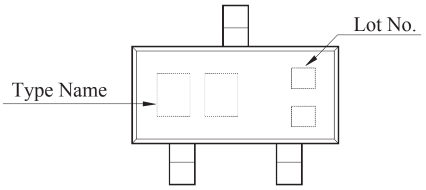
MAXIMUM RATING (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-100	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_j	-55~150	℃
Storage Temperature Range	T_{stg}	-55~150	℃

MARK SPEC

TYPE	KRA110S	KRA111S	KRA112S	KRA113S	KRA114S
MARK	PK	PM	PN	PO	PP

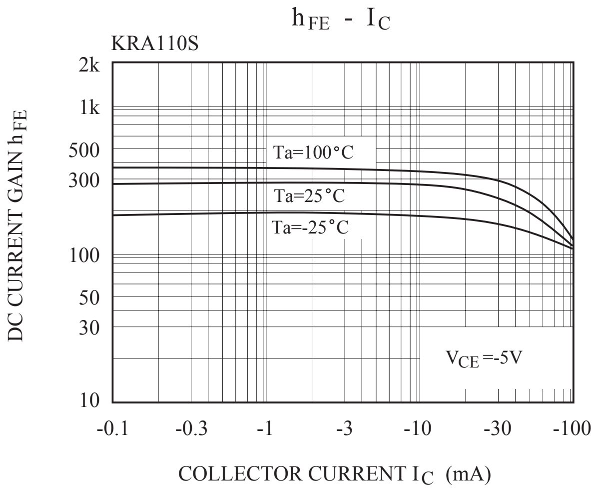
Marking

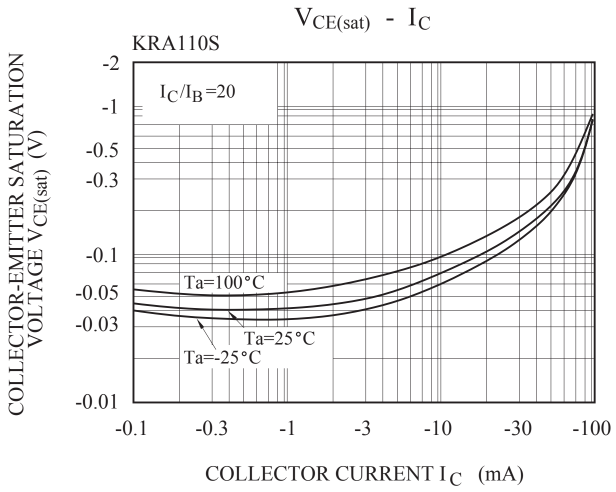


ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC			SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current			I_{CBO}	V_{CB}=-50V, I_E=0	-	-	-100	nA
Emitter Cut-off Current			I_{EBO}	V_{EB}=-5V, I_C=0	-	-	-100	nA
DC Current Gain			h_{FE}	V_{CE}=-5V, I_C=-1mA	120	-	-	
Collector-Emitter Saturation Voltage			$V_{CE(sat)}$	I_C=-10mA, I_B=-0.5mA	-	-0.1	-0.3	V
Transition Frequency			f_T *	V_{CE}=-10V, I_C=-5mA	-	250	-	MHz
Input Resistor		KRA110S	R_1		3.29	4.7	6.11	kΩ
		KRA111S			7	10	13	
		KRA112S			70	100	130	
		KRA113S			15.4	22	28.6	
		KRA114S			32.9	47	61.1	
Switching Time	Rise Time	KRA110S	t_r	V_O=-5V V_{IN}=-5V R_L=1kΩ	-	0.2	-	μS
		KRA111S			-	0.065	-	
		KRA112S			-	0.4	-	
		KRA113S			-	0.1	-	
		KRA114S			-	0.15	-	
	Storage Time	KRA110S	t_{stg}		-	2.0	-	
		KRA111S			-	1.7	-	
		KRA112S			-	3.0	-	
		KRA113S			-	2.0	-	
		KRA114S			-	1.5	-	
	Fall Time	KRA110S	t_f		-	0.3	-	
		KRA111S			-	0.3	-	
		KRA112S			-	1.7	-	
		KRA113S			-	0.8	-	
		KRA114S			-	1.5	-	

Note : * Characteristic of Transistor Only.


h_{FE} - I_C
KRA110S
DC CURRENT GAIN h_{FE}
2k
1k
500
300
100
50
30
10
Ta=100°C
Ta=25°C
Ta=-25°C
V_{CE}=-5V
-0.1
-0.3
-1
-3
-10
-30
-100
COLLECTOR CURRENT I_C (mA)


$V_{CE(sat)}$ - I_C
KRA110S
COLLECTOR-EMITTER SATURATION VOLTAGE $V_{CE(sat)}$ (V)
-2
-1
-0.5
-0.3
-0.1
-0.05
-0.03
-0.01
I_C/I_B=20
Ta=100°C
Ta=25°C
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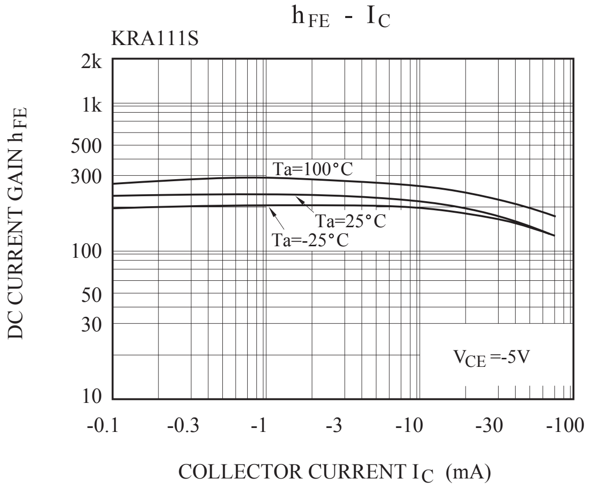
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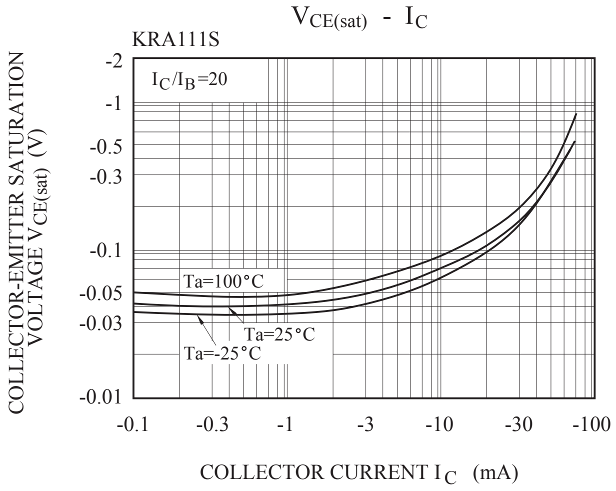
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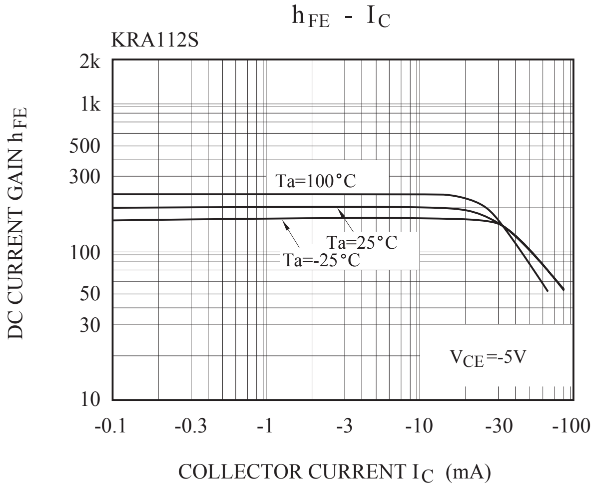
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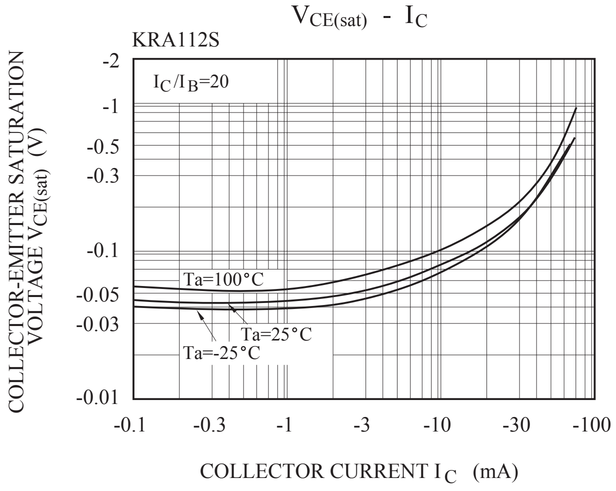
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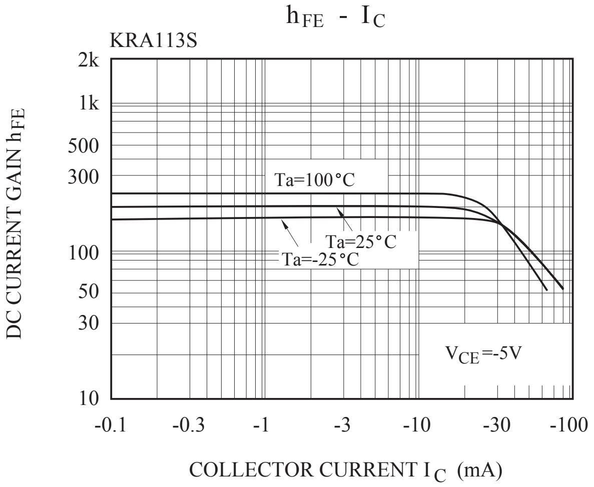
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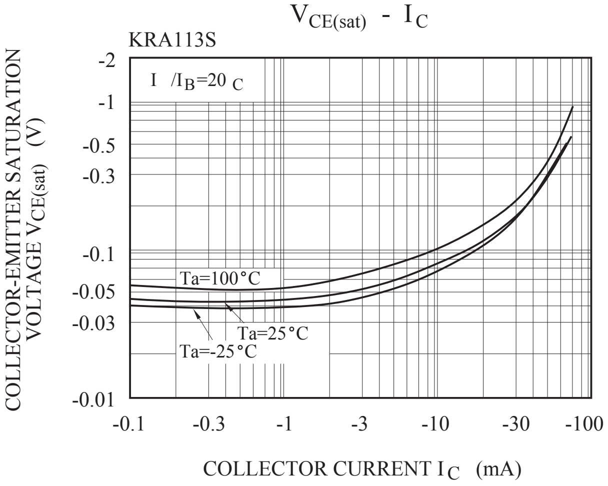
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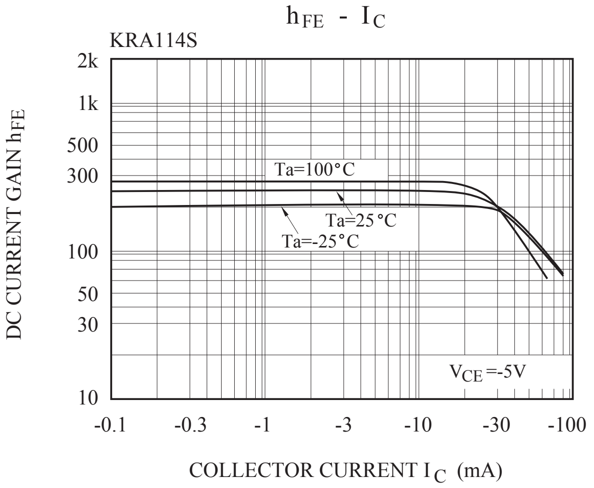
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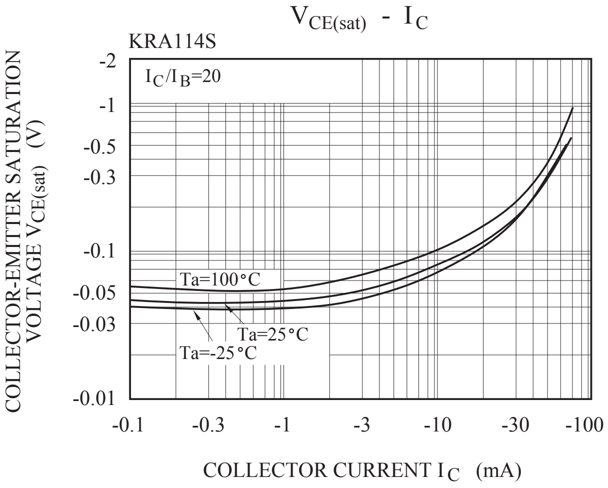
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