KRA110M~KRA114M

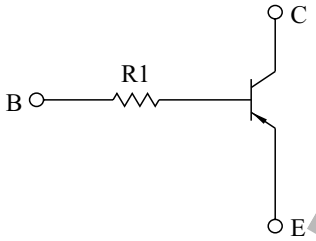
EPITAXIAL PLANAR PNP TRANSISTOR

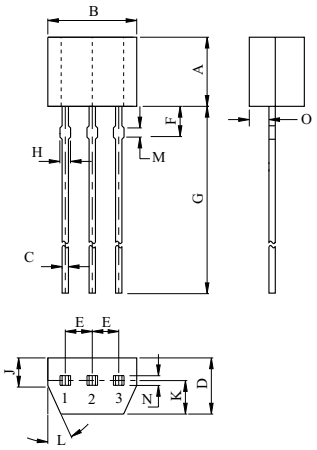
SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

FEATURES

- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.

EQUIVALENT CIRCUIT





DIM	MILLIMETERS
A	3.20 MAX
B	4.30 MAX
C	0.55 MAX
D	2.40±0.15
E	1.27
F	2.30
G	14.00± 0.50
H	0.60 MAX
J	1.05
K	1.45
L	25°
M	0.80
N	0.55 MAX
O	0.75

1. EMITTER
2. COLLECTOR
3. BASE

TO-92M

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	400	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55 150	℃

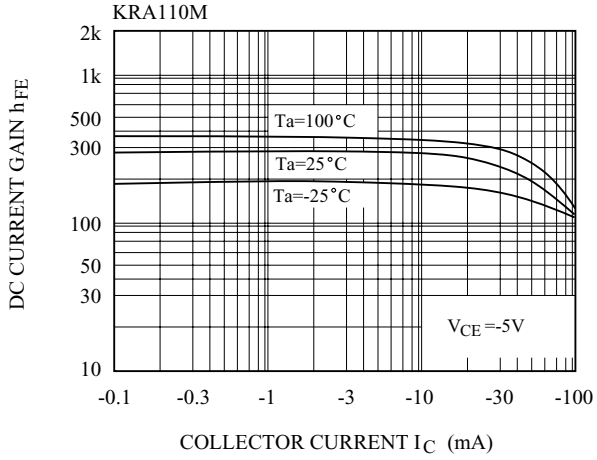
ELECTRICAL CHARACTERISTICS (Ta=25℃)

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
Switching Time	Rise Time	KRA110M	t_r	V_O=-5V V_{IN}=-5V R_L=1kΩ	-	0.2	-	μs
		KRA111M			-	0.065	-	
		KRA112M			-	0.4	-	
		KRA113M			-	0.1	-	
		KRA114M			-	0.15	-	
	Storage Time	KRA110M	t_{stg}		-	2.0	-	
		KRA111M			-	1.7	-	
		KRA112M			-	3.0	-	
		KRA113M			-	2.0	-	
		KRA114M			-	1.5	-	
	Fall Time	KRA110M	t_f		-	0.3	-	
		KRA111M			-	0.3	-	
		KRA112M			-	1.7	-	
		KRA113M			-	0.8	-	
		KRA114M			-	1.5	-	
Input Resistor		KRA110M	R1	-	3.29	4.7	6.11	kΩ
		KRA111M			7	10	13	
		KRA112M			70	100	130	
		KRA113M			15.4	22	28.6	
		KRA114M			32.9	47	61.1	

Note : * Characteristic of Transistor Only.

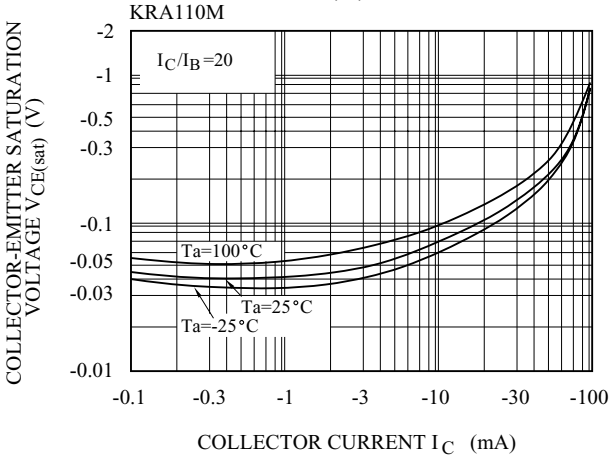
h_{FE} - I_C

KRA110M



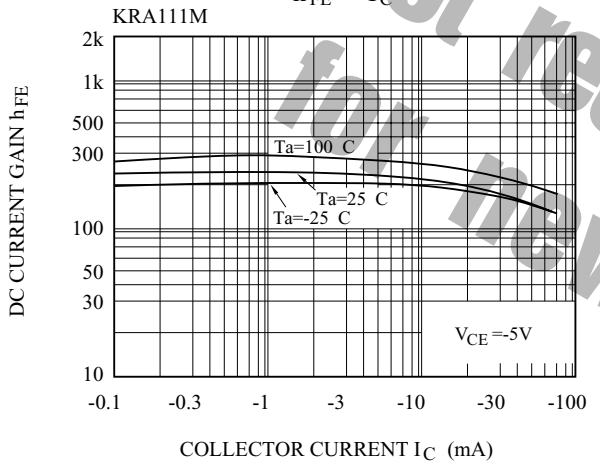
$V_{CE(sat)}$ - I_C

KRA110M



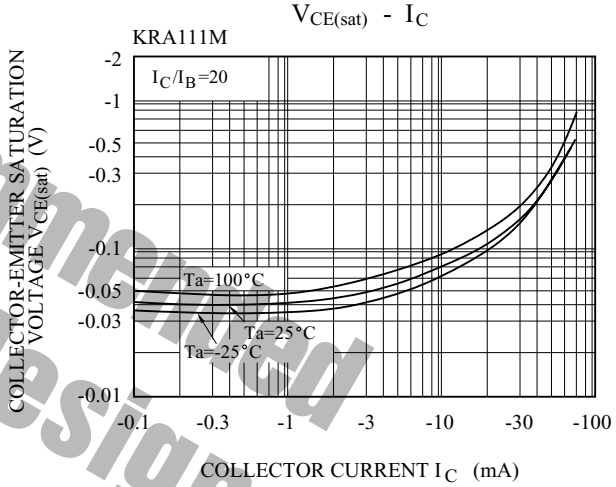
h_{FE} - I_C

KRA111M



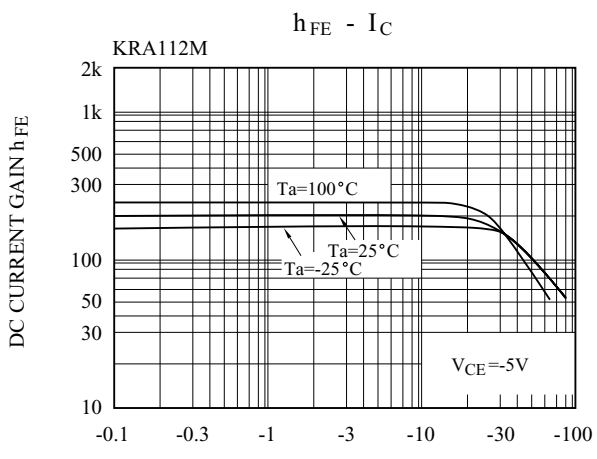
$V_{CE(sat)}$ - I_C

KRA111M



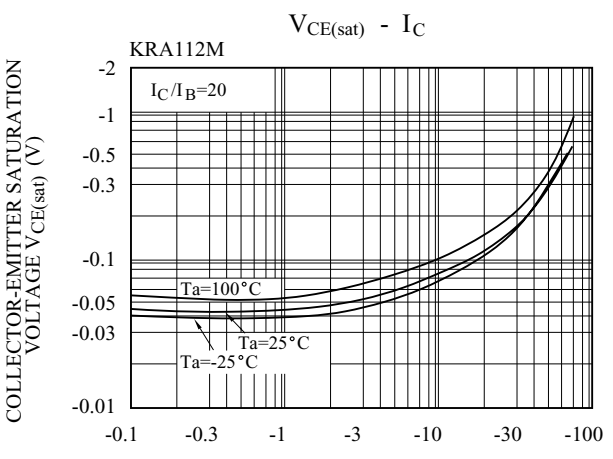
h_{FE} - I_C

KRA112M

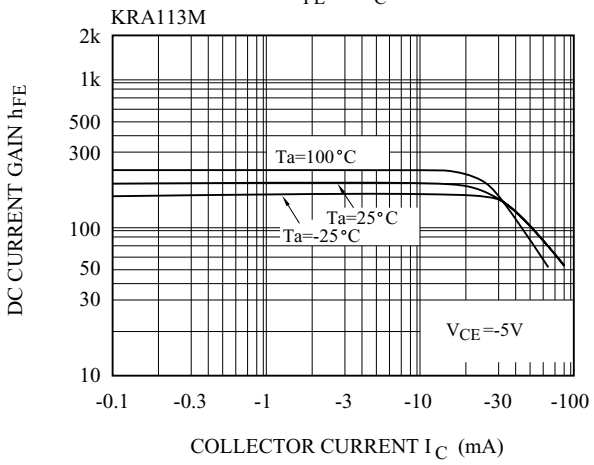


$V_{CE(sat)}$ - I_C

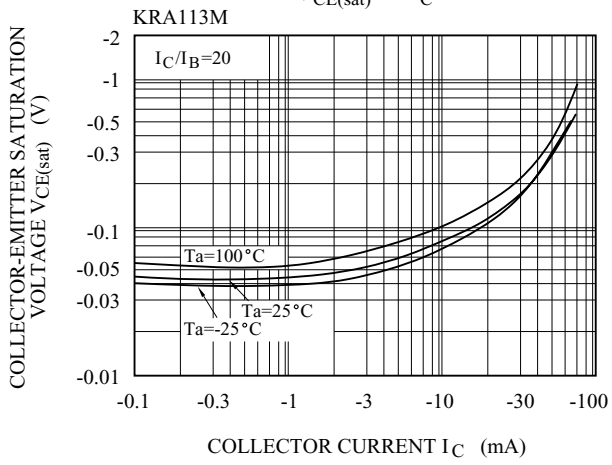
KRA112M



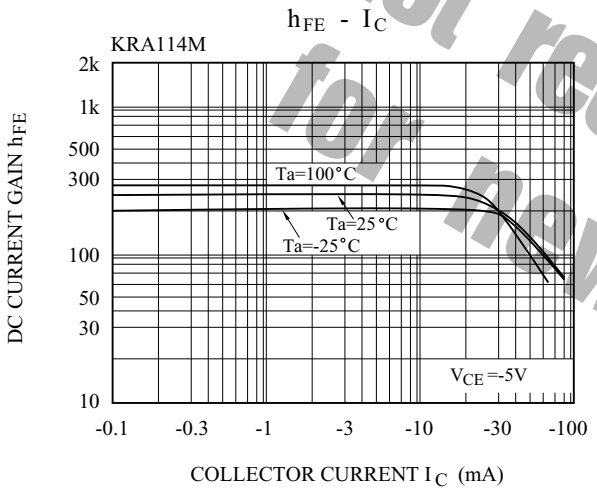
h_{FE} - I_C



$V_{CE(sat)}$ - I_C



h_{FE} - I_C



$V_{CE(sat)}$ - I_C