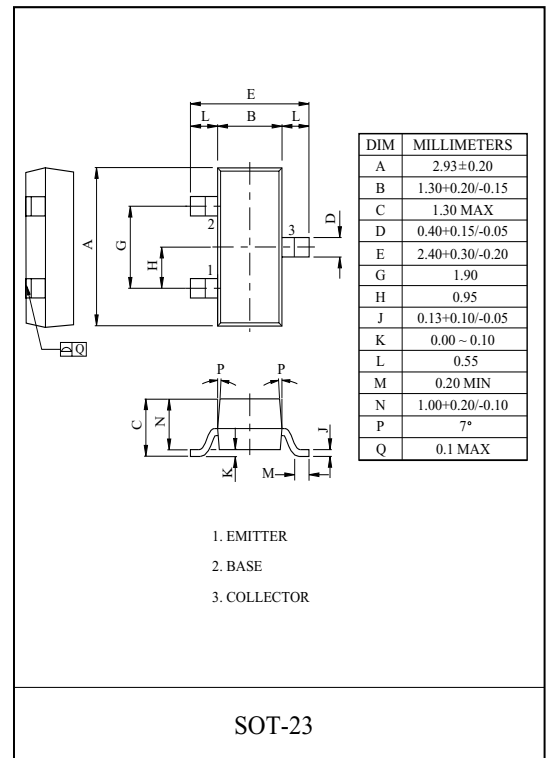
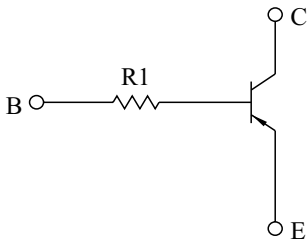


SWITCHING APPLICATION.  
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

#### FEATURES

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

#### EQUIVALENT CIRCUIT



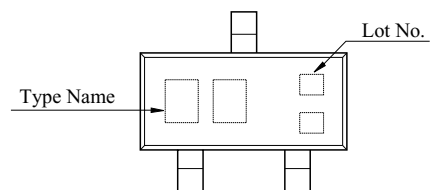
#### MAXIMUM RATING (Ta=25 °C)

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	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	

#### MARK SPEC

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

#### Marking



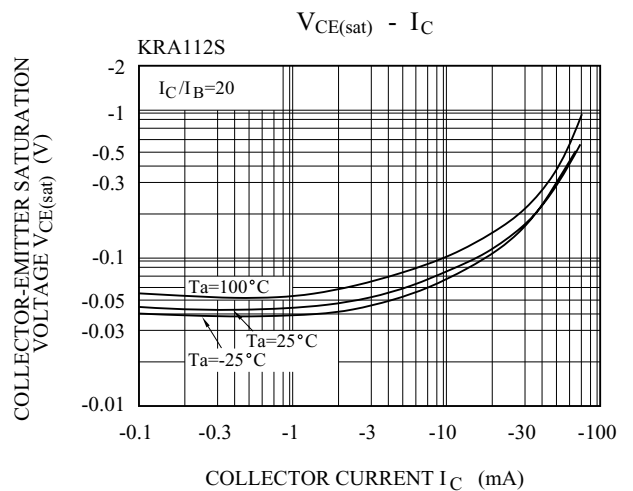
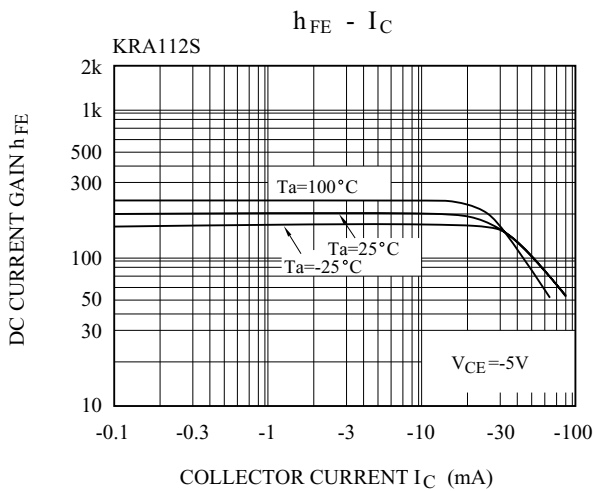
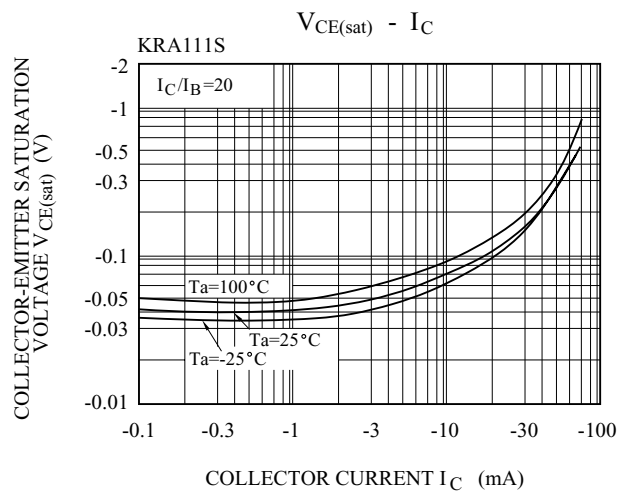
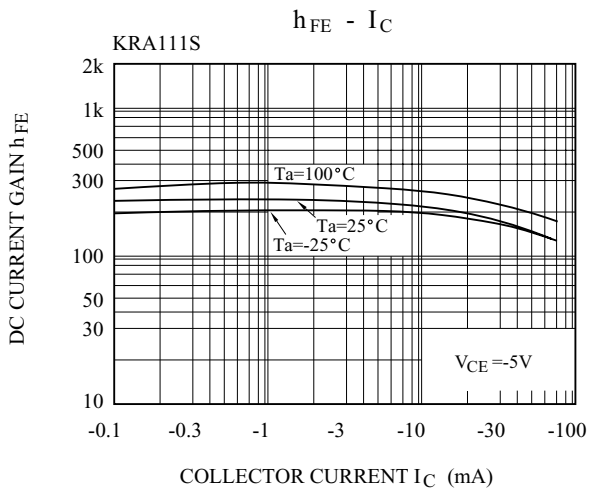
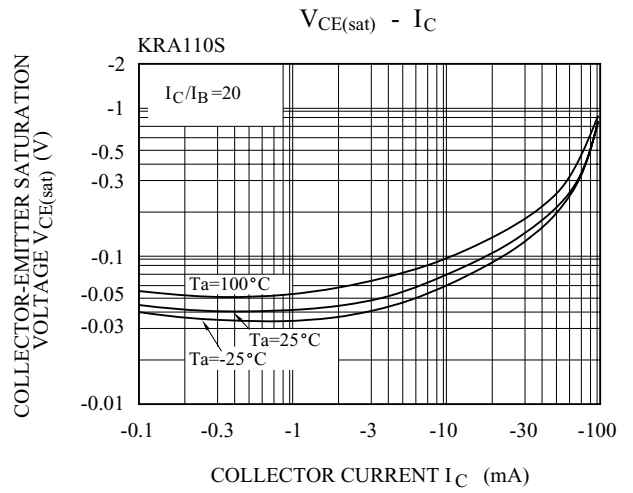
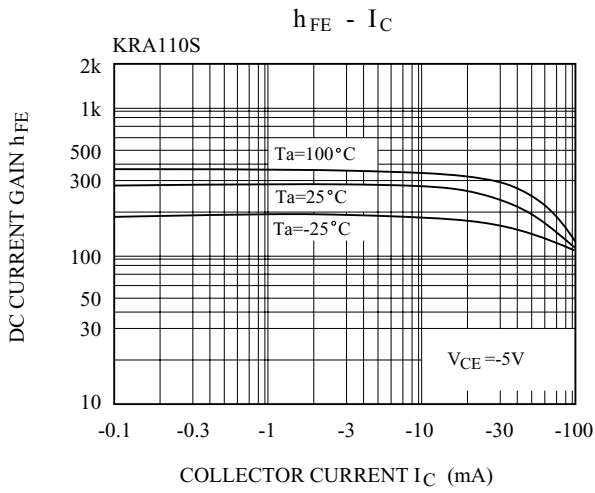
# KRA110S~KRA114S

## ELECTRICAL CHARACTERISTICS (Ta=25 )

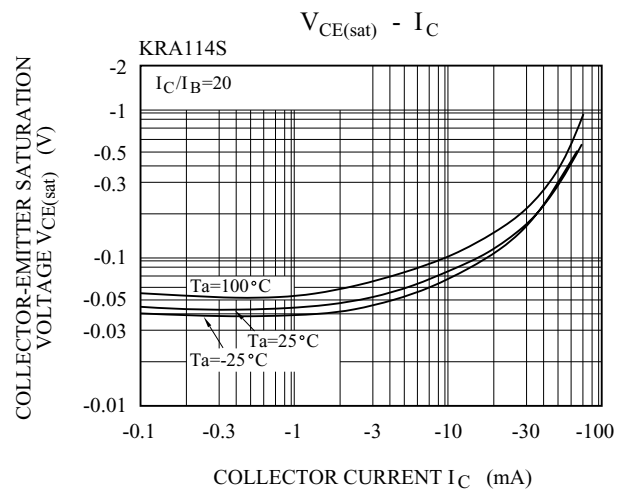
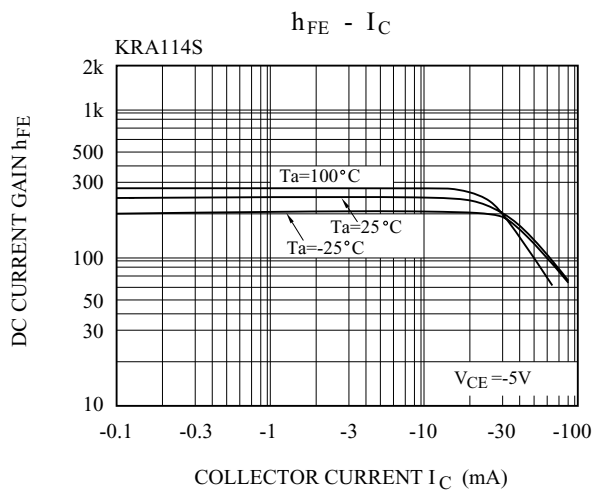
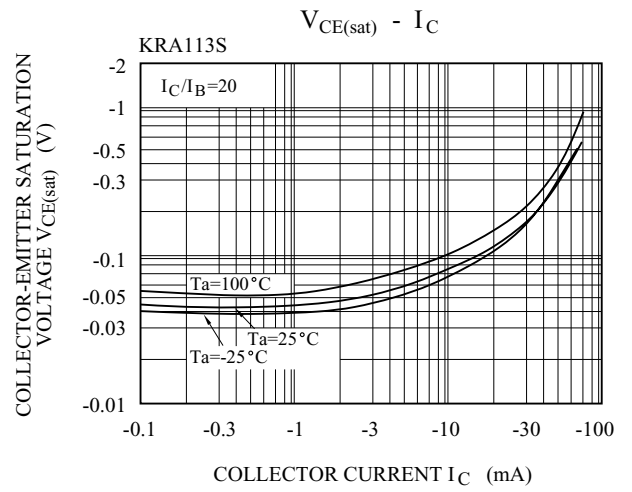
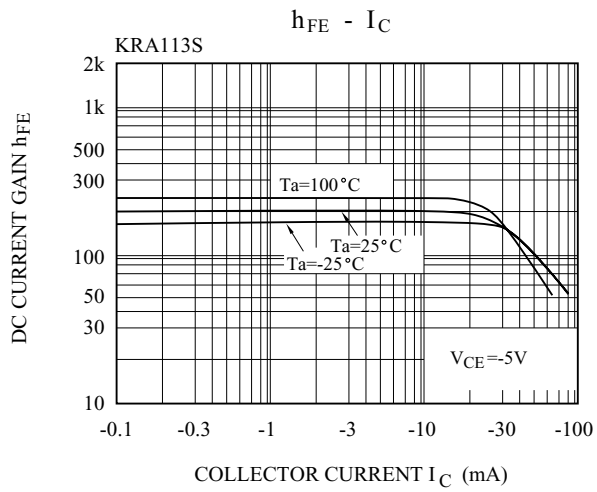
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current		$I_{CBO}$	$V_{CB}=-50V, I_E=0$	-	-	-100	nA	
Emitter Cut-off Current		$I_{EBO}$	$V_{EB}=-5V, I_C=0$	-	-	-100	nA	
DC Current Gain		$h_{FE}$	$V_{CE}=-5V, I_C=-1mA$	120	-	-		
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$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

Note : \* Characteristic of Transistor Only.

# KRA110S~KRA114S



# KRA110S~KRA114S



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