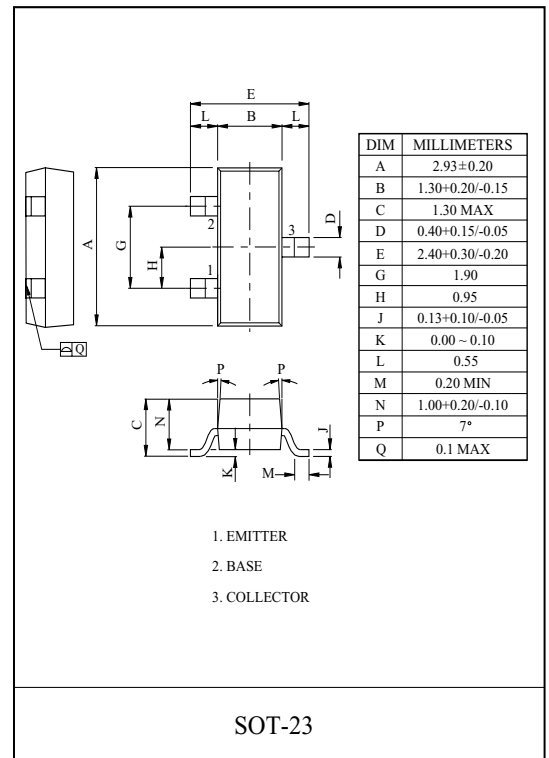
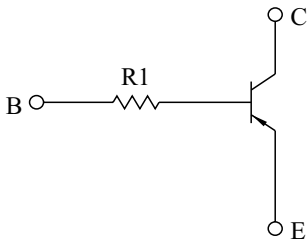


SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

FEATURES

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

EQUIVALENT CIRCUIT



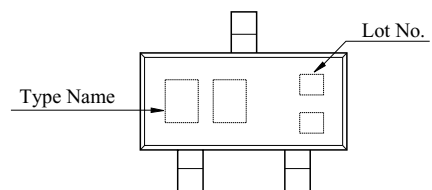
MAXIMUM RATING (Ta=25 °C)

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



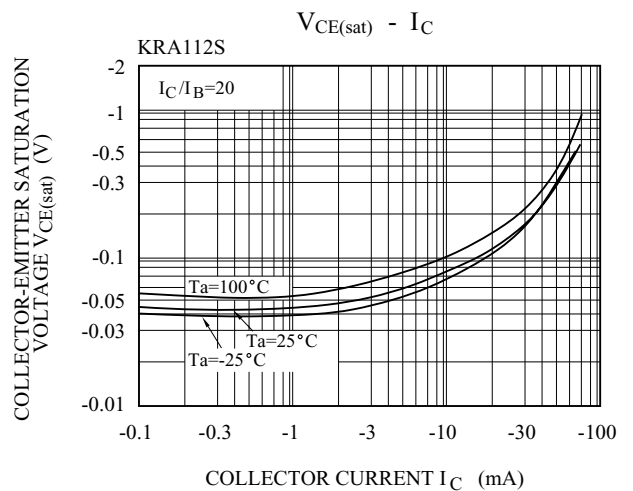
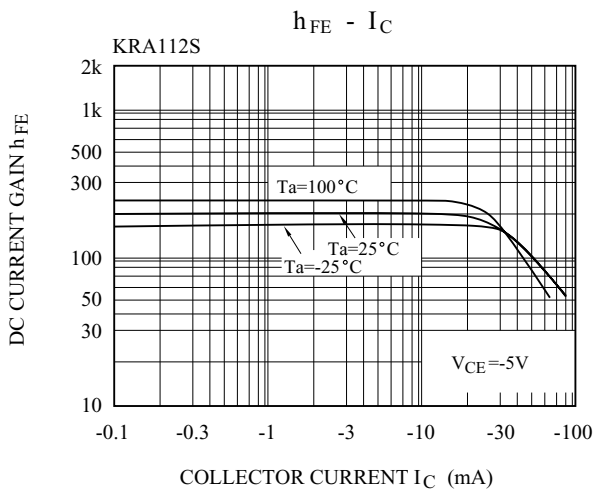
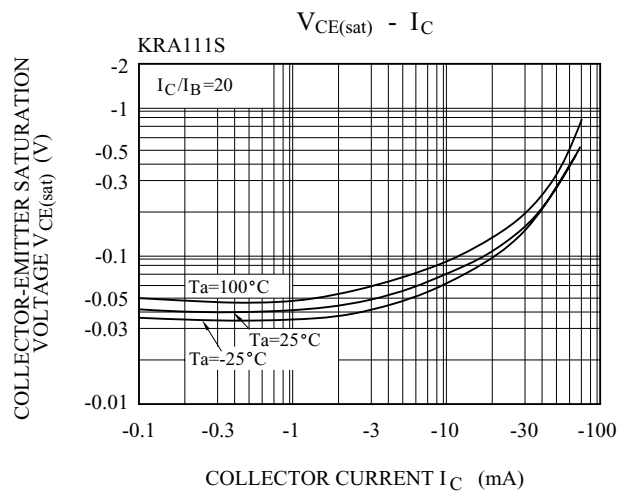
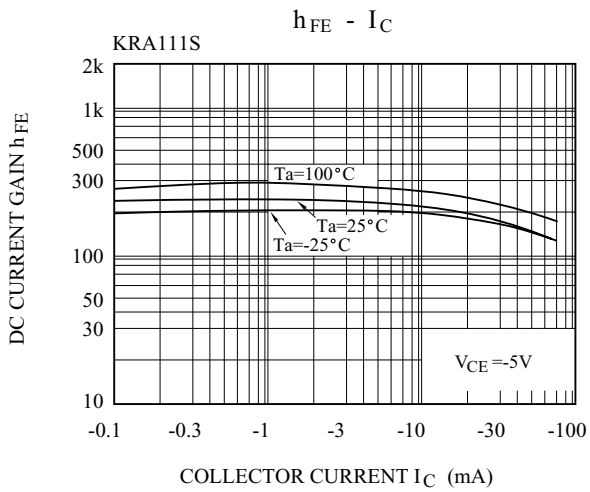
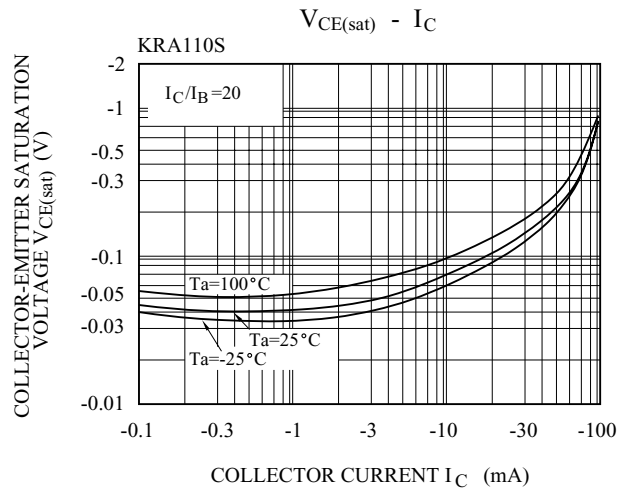
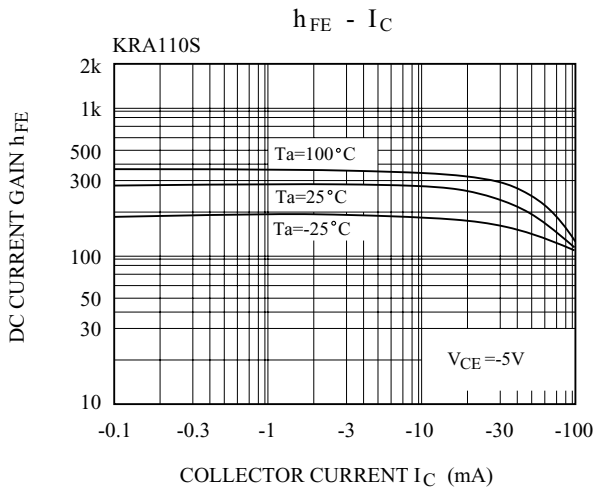
KRA110S~KRA114S

ELECTRICAL CHARACTERISTICS (Ta=25)

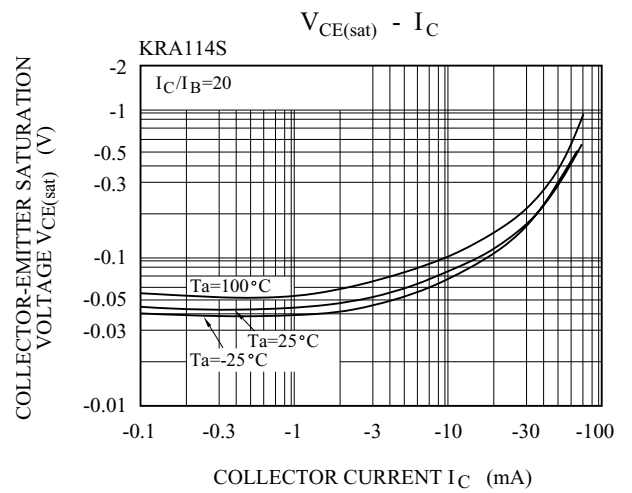
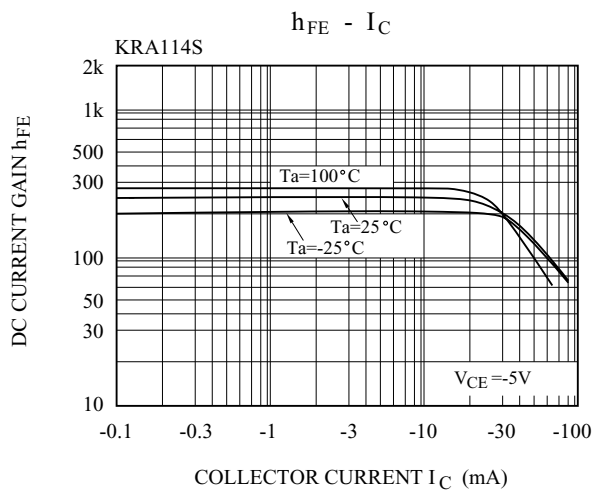
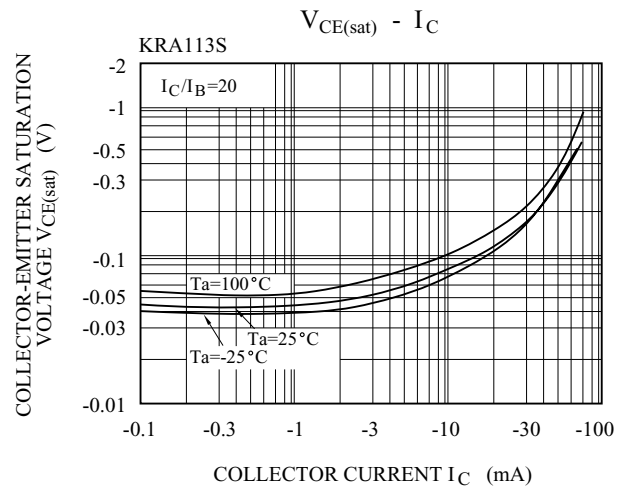
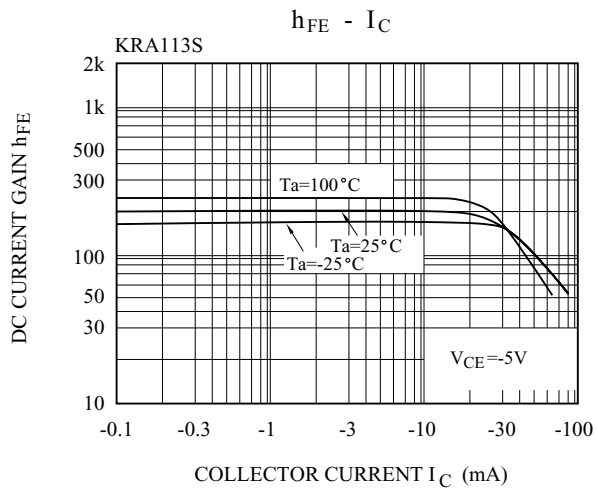
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT		
Collector Cut-off Current		I_{CBO}	$V_{CB}=-50V, I_E=0$	-	-	-100	nA		
Emitter Cut-off Current		I_{EBO}	$V_{EB}=-5V, I_C=0$	-	-	-100	nA		
DC Current Gain		h_{FE}	$V_{CE}=-5V, I_C=-1mA$	120	-	-			
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C=-10mA, I_B=-0.5mA$	-	-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	KRA110S	t_r	-	0.2	-	μs		
		KRA111S		-	0.065	-			
		KRA112S		-	0.4	-			
		KRA113S		-	0.1	-			
		KRA114S		-	0.15	-			
	Storage Time	KRA110S		t_{stg}	$V_O=-5V$	-		2.0	-
		KRA111S			$V_{IN}=-5V$	-		1.7	-
		KRA112S			$R_L=1k$	-		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.

KRA110S~KRA114S



KRA110S~KRA114S



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