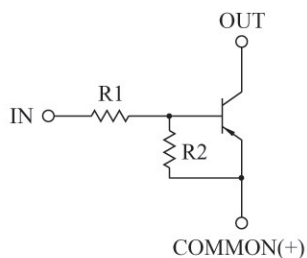


SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION

FEATURES

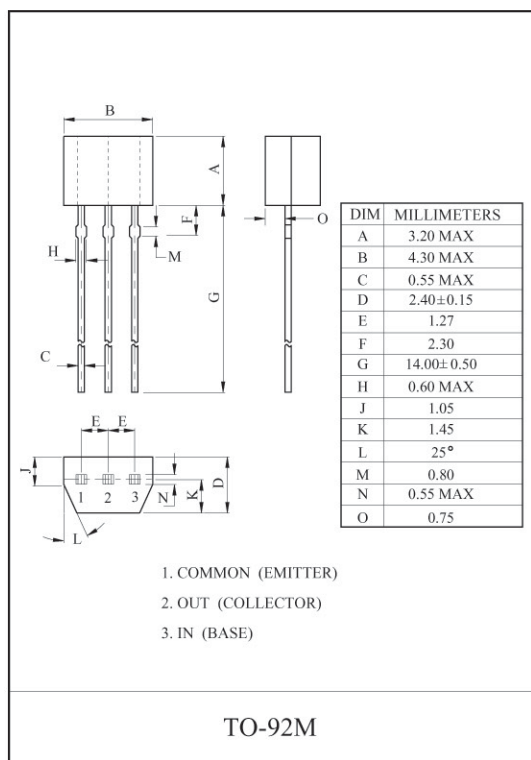
- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.

EQUIVALENT CIRCUIT



BIAS RESISTOR VALUES

TYPE NO.	R1(k Ω)	R2(k Ω)
KRA116M	1	10
KRA117M	2.2	2.2
KRA118M	2.2	10
KRA119M	4.7	10
KRA120M	10	4.7
KRA121M	47	10
KRA122M	100	100



MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Voltage	KRA116M~122M	V_O	-50	V
Input Voltage	KRA116M	V_i	-10 5	V
	KRA117M		-12 10	
	KRA118M		-12 5	
	KRA119M		-20 7	
	KRA120M		-30 10	
	KRA121M		-40 15	
	KRA122M		-40 10	
Output Current	KRA116M~122M	I_O	-100	mA
Power Dissipation		P_D	400	mW
Junction Temperature		T	150	°C
Storage Temperature Range		T_{stg}	-55 ~ 150	°C

KRA116M~KRA122M

ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Cut-off Current	KRA116M ~ 122M	$I_{O(OFF)}$	$V_O=-50V, V_I=0$	-	-	-500	nA
DC Current Gain	KRA116M	G_I	$V_O=-5V, I_O=-5mA$	33	-	-	
	KRA117M		$V_O=-5V, I_O=-20mA$	20	-	-	
	KRA118M		$V_O=-5V, I_O=-10mA$	33	-	-	
	KRA119M		$V_O=-5V, I_O=-10mA$	30	-	-	
	KRA120M		$V_O=-5V, I_O=-10mA$	24	-	-	
	KRA121M		$V_O=-5V, I_O=-5mA$	33	-	-	
	KRA122M		$V_O=-5V, I_O=-5mA$	62	-	-	
Output Voltage	KRA116M	$V_{O(ON)}$	$I_O=-10mA, I_I=-0.5mA$	-	-	-0.3	V
	KRA117M		$I_O=-10mA, I_I=-0.5mA$	-	-0.1	-0.3	
	KRA118M		$I_O=-10mA, I_I=-0.5mA$	-	-	-0.3	
	KRA119M		$I_O=-10mA, I_I=-0.5mA$	-	-0.1	-0.3	
	KRA120M		$I_O=-10mA, I_I=-0.5mA$	-	-0.1	-0.3	
	KRA121M		$I_O=-10mA, I_I=-0.5mA$	-	-0.1	-0.3	
	KRA122M		$I_O=-5mA, I_I=-0.25mA$	-	-0.1	-0.3	
Input Voltage (ON)	KRA116M	$V_{I(ON)}$	$V_O=-0.3V, I_O=-20mA$	-	-0.98	-3	V
	KRA117M		$V_O=-0.3V, I_O=-20mA$	-	-1.83	-3	
	KRA118M		$V_O=-0.3V, I_O=-20mA$	-	-1.22	-3	
	KRA119M		$V_O=-0.3V, I_O=-20mA$	-	-1.76	-2.5	
	KRA120M		$V_O=-0.3V, I_O=-2mA$	-	-2	-3	
	KRA121M		$V_O=-0.3V, I_O=-2mA$	-	-3.9	-5	
	KRA122M		$V_O=-0.3V, I_O=-1mA$	-	-1.64	-3	
Input Voltage (OFF)	KRA116M	$V_{I(OFF)}$	$V_{CC}=-5V, I_O=-100\mu A$	-0.3	-0.63	-	V
	KRA117M			-0.5	-1.15	-	
	KRA118M			-0.3	-0.67	-	
	KRA119M			-0.3	-0.82	-	
	KRA120M			-0.8	-1.68	-	
	KRA121M			-1	-3.09	-	
	KRA122M			-0.5	-1.17	-	
Transition Frequency	KRA116M ~ 122M	f_T^*	$V_O=-10V, I_O=-5mA$	-	250	-	MHz
Input Current	KRA116M	I_I	$V_I=-5V$	-	-	-7.2	mA
	KRA117M			-	-	-3.8	
	KRA118M			-	-	-3.8	
	KRA119M			-	-	-1.8	
	KRA120M			-	-	-0.88	
	KRA121M			-	-	-0.16	
	KRA122M			-	-	-0.15	
Input Resistor	KRA116M	R1	-	0.7	1	1.3	k Ω
	KRA117M			1.54	2.2	2.86	
	KRA118M			1.54	2.2	2.86	
	KRA119M			3.29	4.7	6.11	
	KRA120M			7	10	13	
	KRA121M			32.9	47	61.1	
	KRA122M			70	100	130	
Resistor Ratio	KRA116M	R2/R1	-	8	10	12	
	KRA117M			0.8	1.0	1.2	
	KRA118M			3.6	4.5	5.5	
	KRA119M			1.7	2.1	2.6	
	KRA120M			0.37	0.47	0.57	
	KRA121M			0.17	0.21	0.26	
	KRA122M			0.8	1.0	1.2	

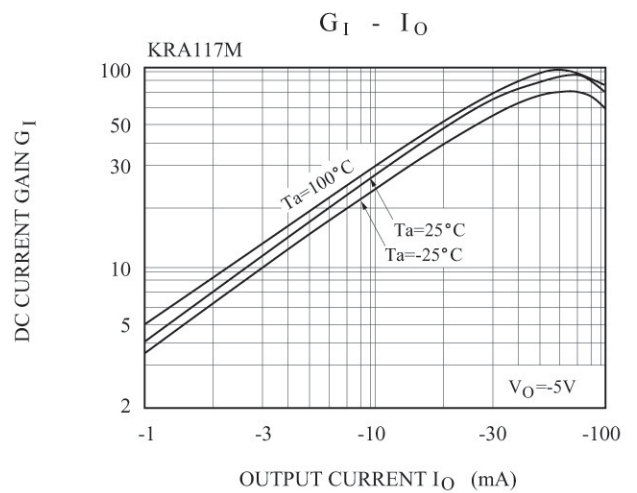
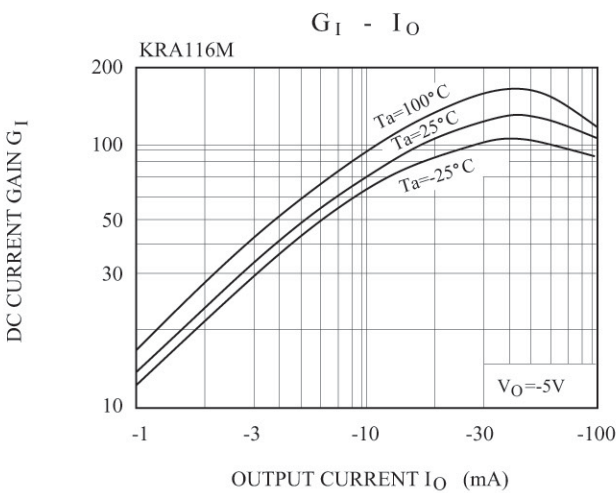
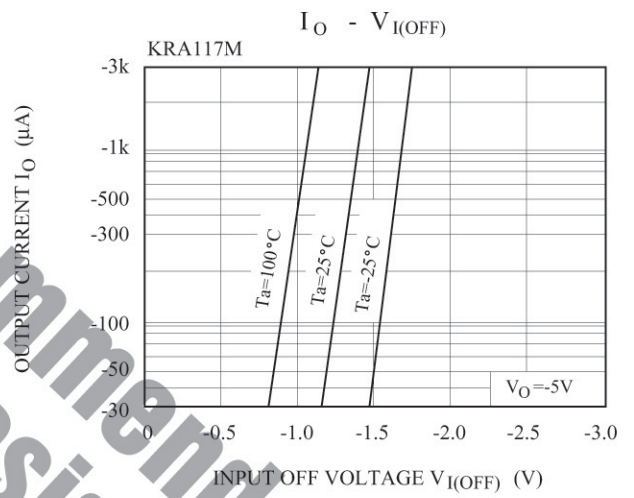
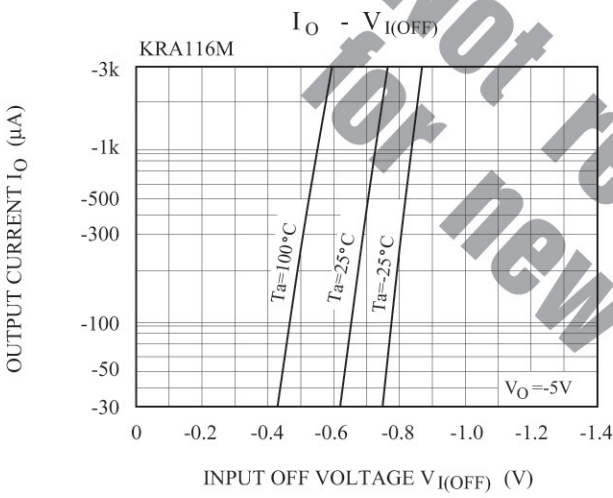
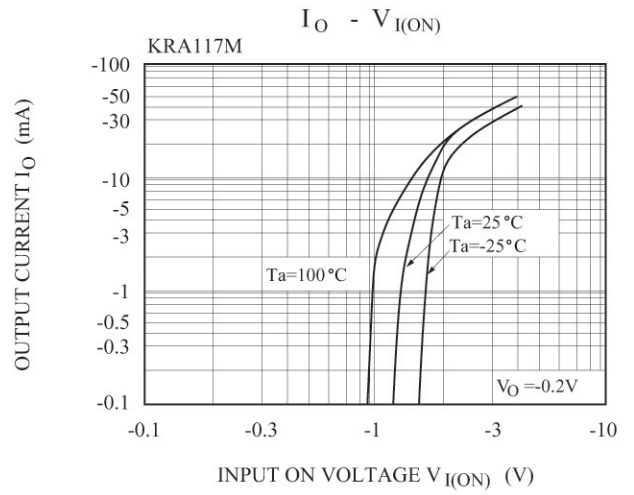
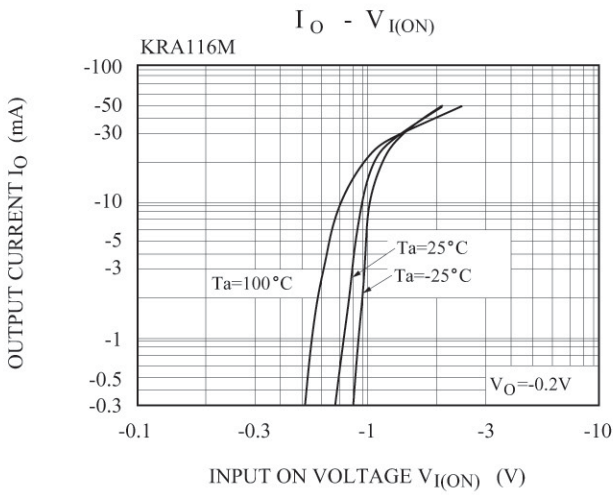
Note : * Characteristic of Transistor Only.

KRA116M~KRA122M

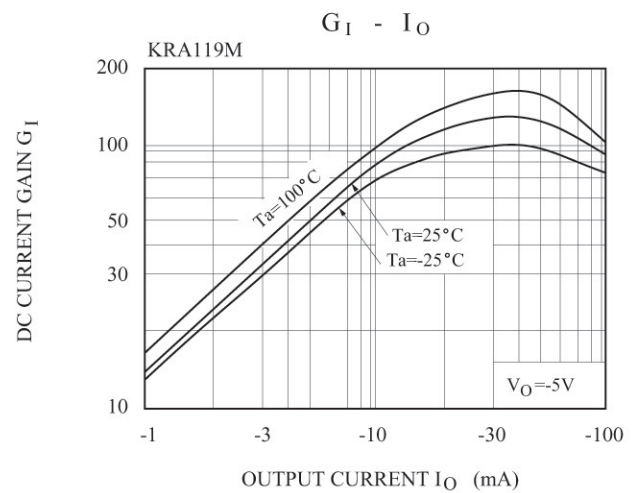
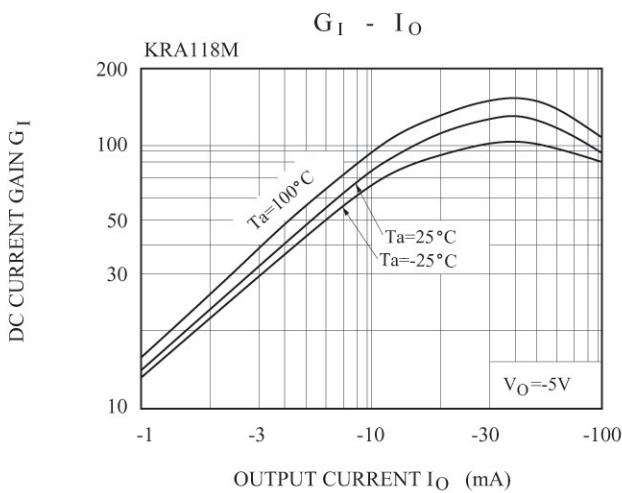
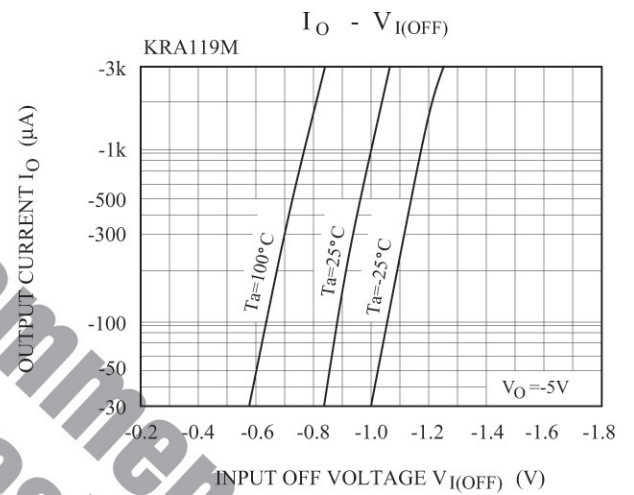
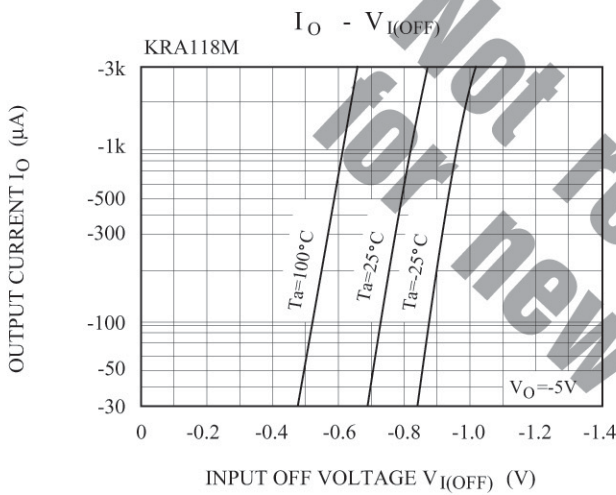
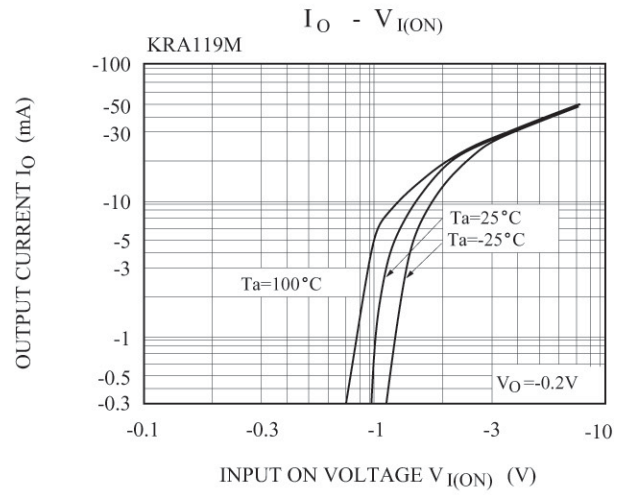
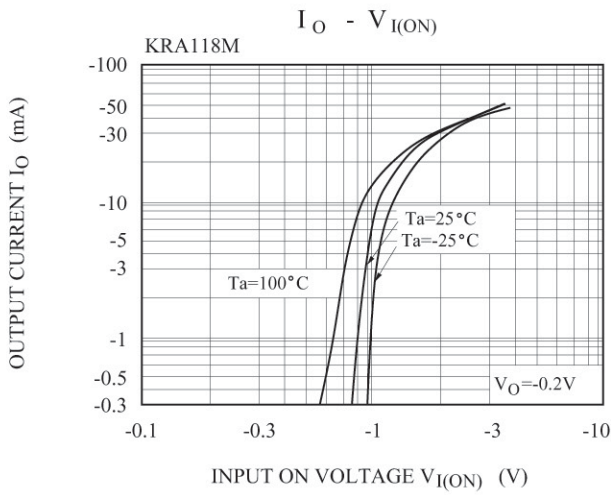
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Switching Time	Rise Time	KRA116M	V _O =-5V V _{IN} =-5V R _L =1kΩ	-	0.01	-	μS	
		KRA117M		-	0.03	-		
		KRA118M		-	0.02	-		
		KRA119M		t _r	-	0.05		-
		KRA120M		-	0.12	-		
		KRA121M		-	0.30	-		
		KRA122M		-	0.35	-		
	Storage Time	KRA116M		t _{stg}	-	3		-
		KRA117M		-	-	2		-
		KRA118M		-	-	3		-
		KRA119M		-	-	3		-
		KRA120M		-	-	2		-
		KRA121M		-	-	2		-
		KRA122M		-	-	2		-
	Fall Time	KRA116M		t _f	-	0.1		-
		KRA117M		-	-	0.19		-
		KRA118M		-	-	0.1		-
		KRA119M		-	-	0.36		-
		KRA120M		-	-	0.35		-
		KRA121M		-	-	0.5		-
		KRA122M		-	-	0.7		-

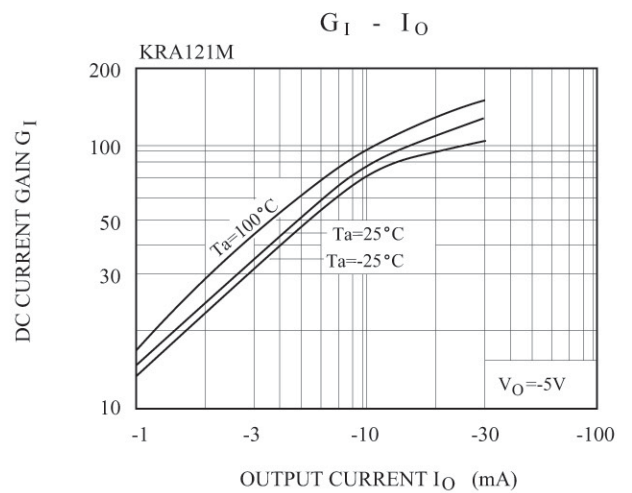
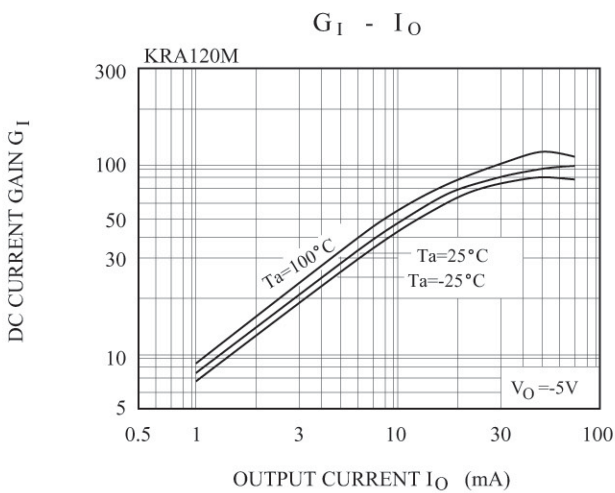
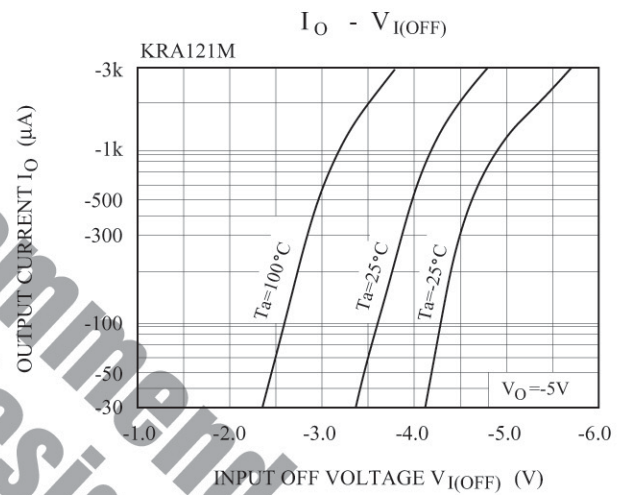
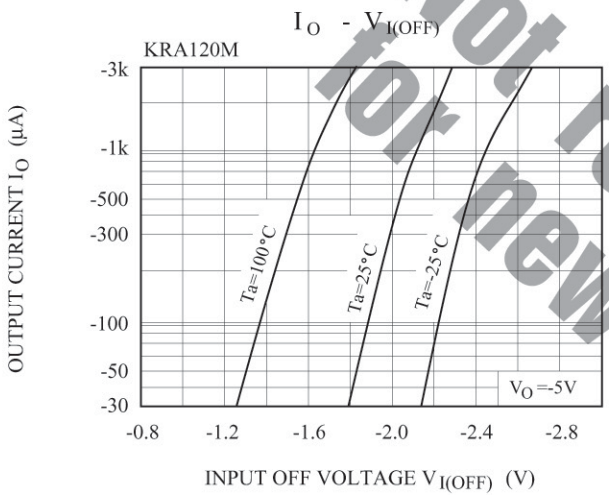
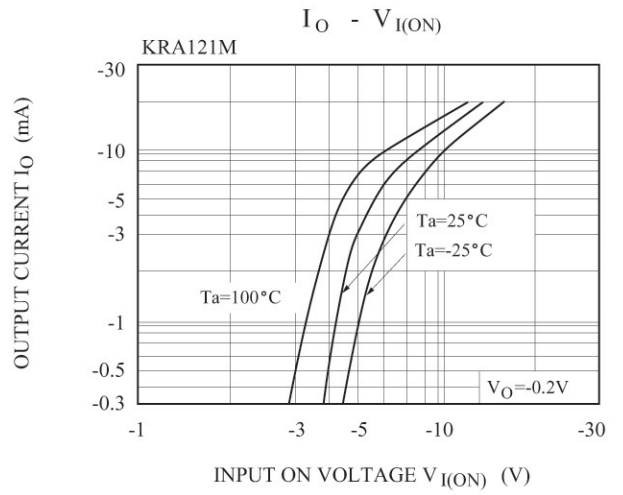
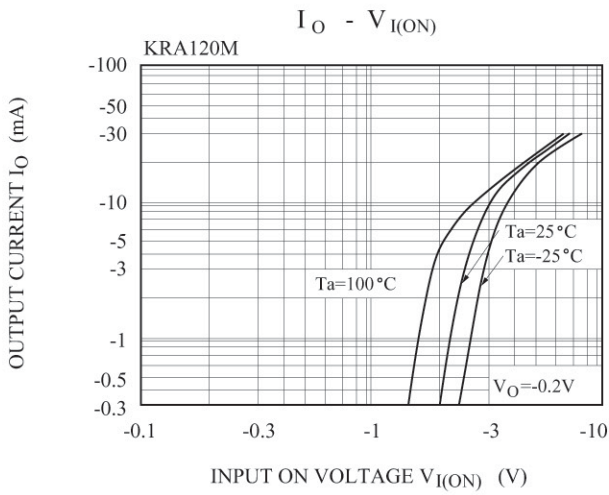
KRA116M~KRA122M



KRA116M~KRA122M



KRA116M~KRA122M



KRA116M~KRA122M

