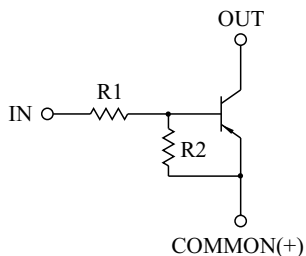


SWITCHING APPLICATION.  
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION

### FEATURES

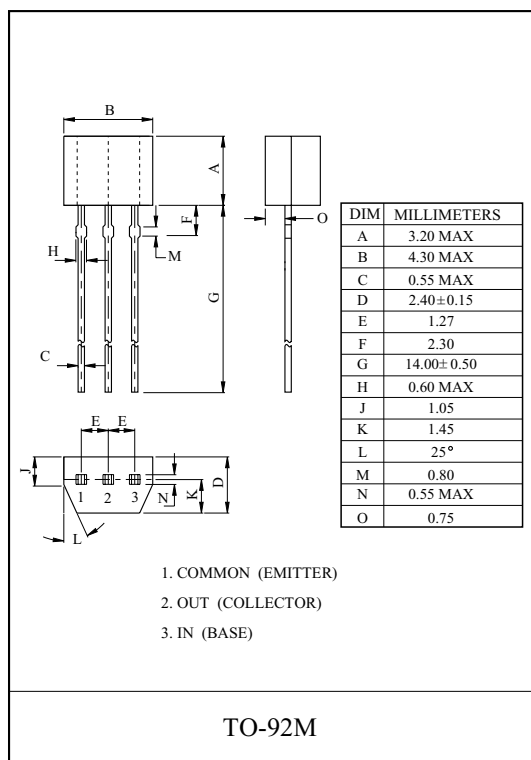
- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.

### EQUIVALENT CIRCUIT



### BIAS RESISTOR VALUES

TYPE NO.	R1(k $\Omega$ )	R2(k $\Omega$ )
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		$T_j$	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	

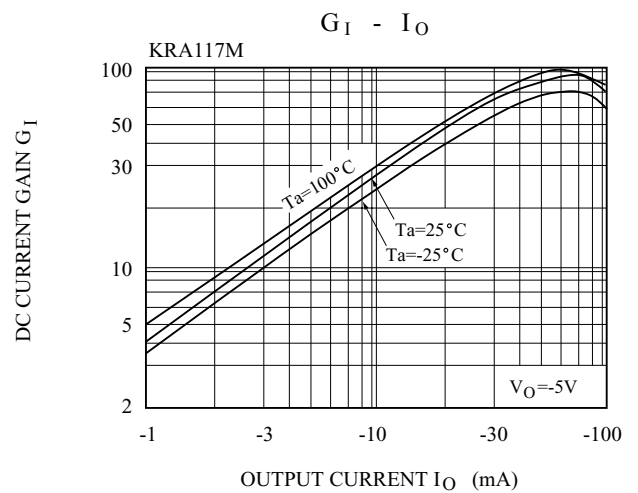
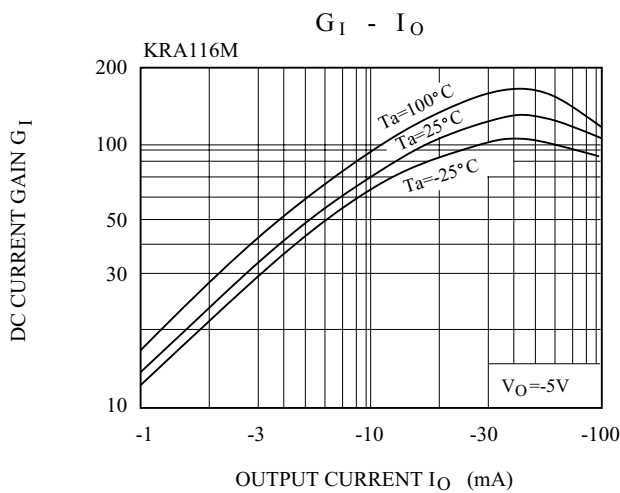
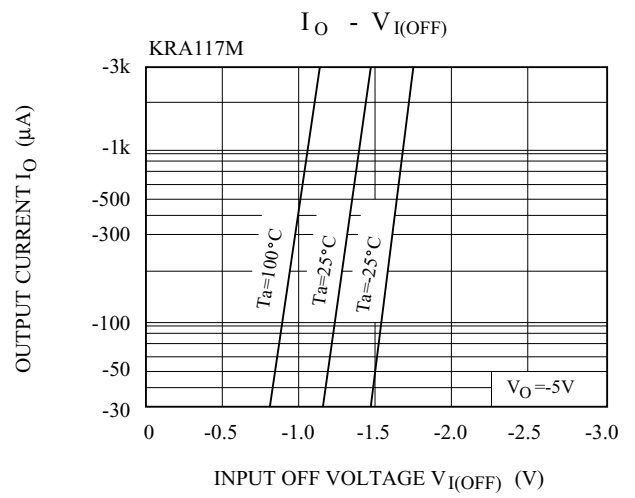
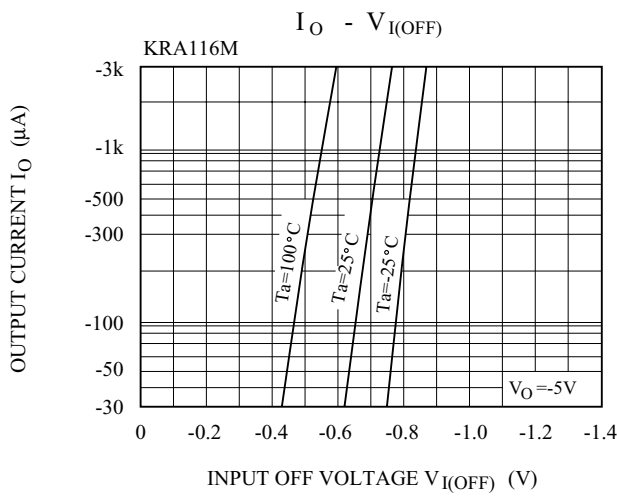
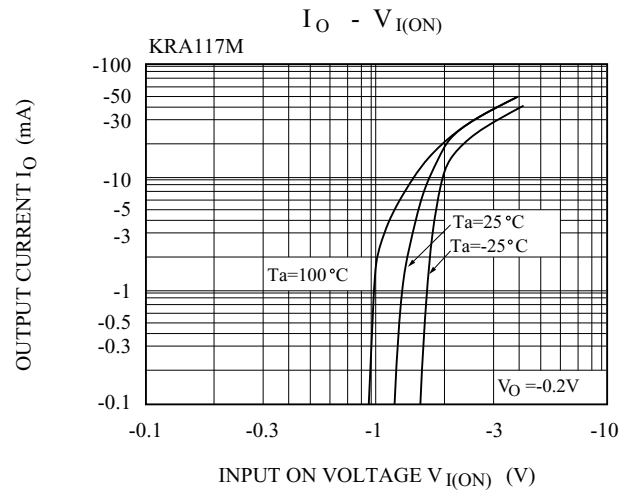
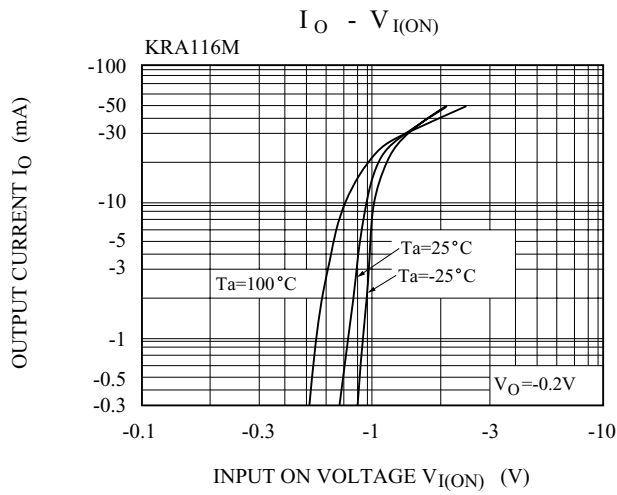
Note : \* Characteristic of Transistor Only.

# KRA116M~KRA122M

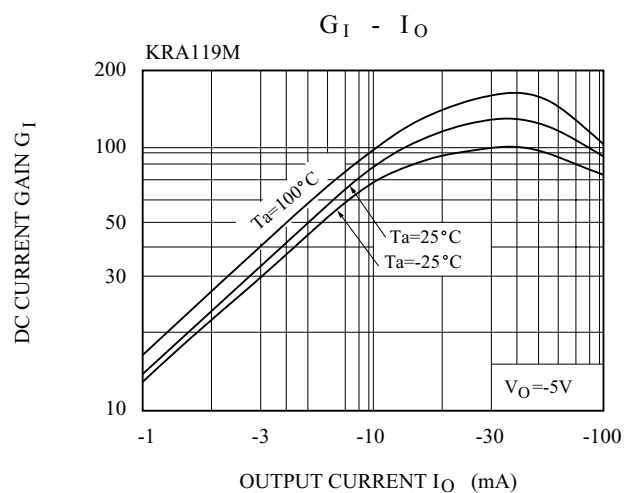
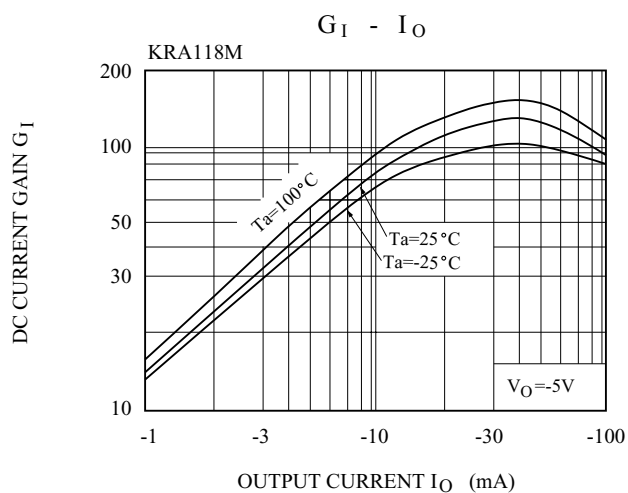
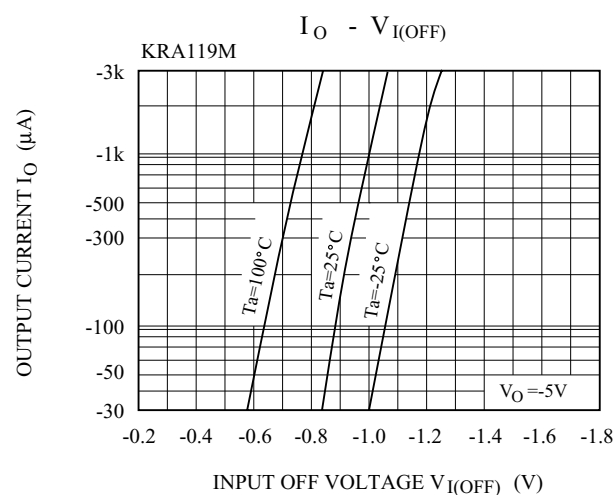
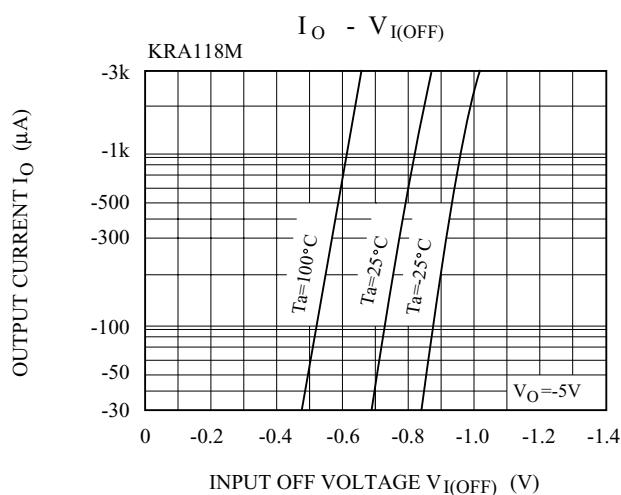
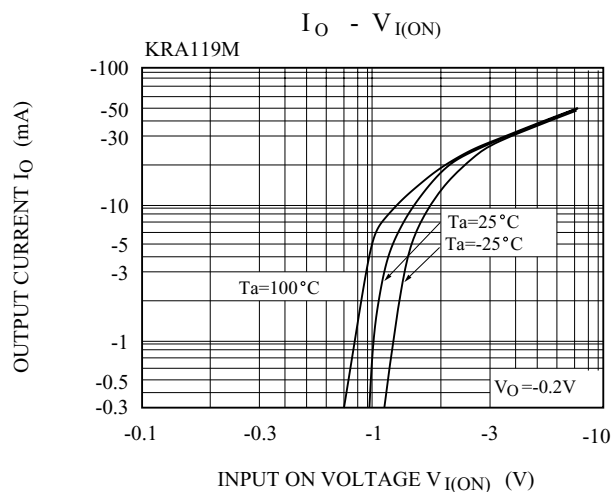
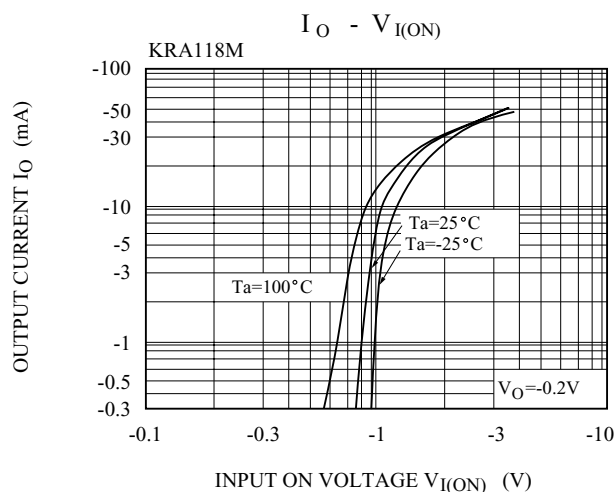
## ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC			SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Switching Time	Rise Time	KRA116M	t <sub>r</sub>	V <sub>O</sub> =-5V V <sub>IN</sub> =-5V R <sub>L</sub> =1kΩ	-	0.01	-	μs
		KRA117M			-	0.03	-	
		KRA118M			-	0.02	-	
		KRA119M			-	0.05	-	
		KRA120M			-	0.12	-	
		KRA121M			-	0.30	-	
		KRA122M			-	0.35	-	
	Storage Time	KRA116M	t <sub>stg</sub>		-	3	-	
		KRA117M			-	2	-	
		KRA118M			-	3	-	
		KRA119M			-	3	-	
		KRA120M			-	2	-	
		KRA121M			-	2	-	
		KRA122M			-	2	-	
	Fall Time	KRA116M	t <sub>f</sub>		-	0.1	-	
		KRA117M			-	0.19	-	
		KRA118M			-	0.1	-	
		KRA119M			-	0.36	-	
		KRA120M			-	0.35	-	
		KRA121M			-	0.5	-	
		KRA122M			-	0.7	-	

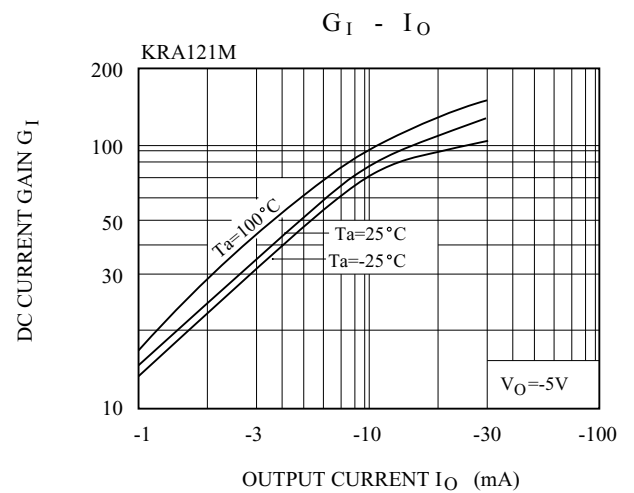
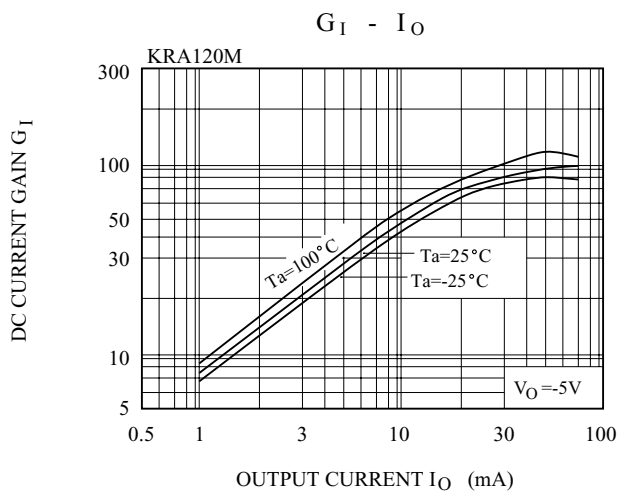
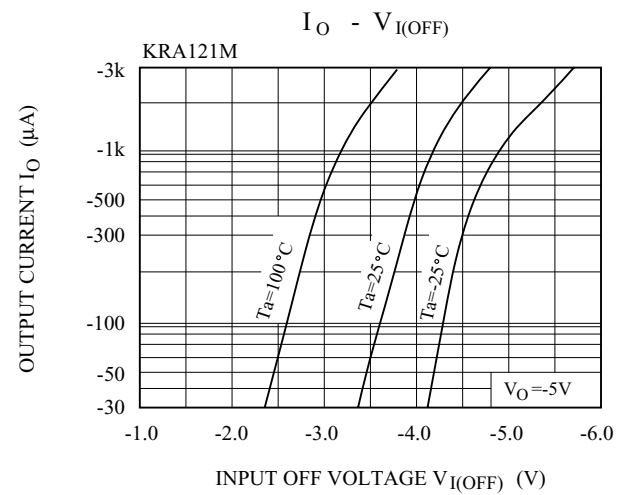
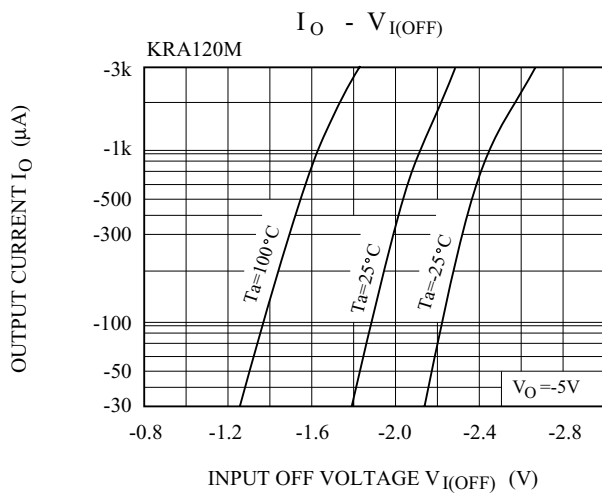
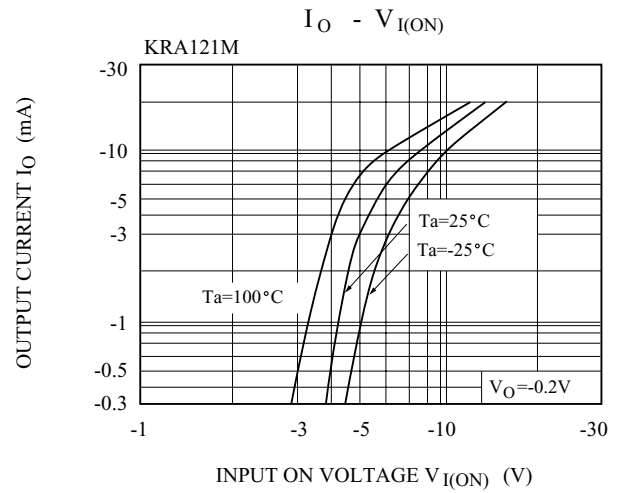
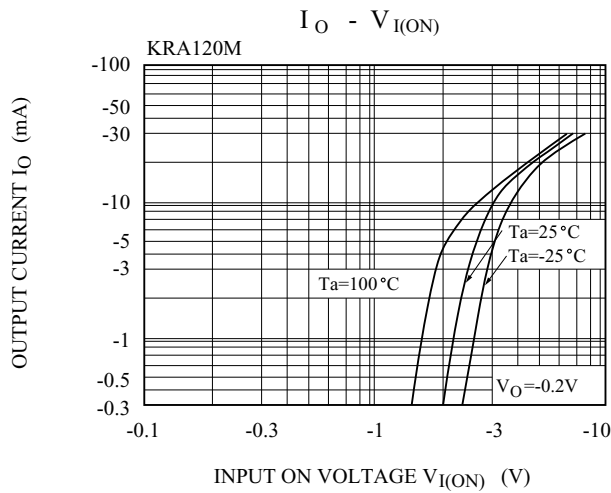
# KRA116M~KRA122M



# KRA116M~KRA122M



# KRA116M~KRA122M



# KRA116M~KRA122M

