KEL
KOREA ELECTRONICS CO.,LTD.

SEMICONDUCTOR
TECHNICAL DATA
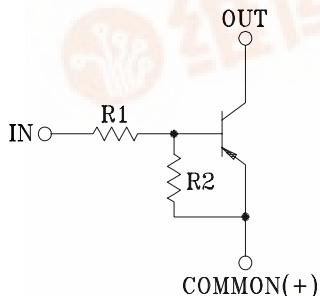
KRA107M ~ KRA109M
## EPITAXIAL PLANAR PNP TRANSISTOR

SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER
CIRCUIT APPLICATION.
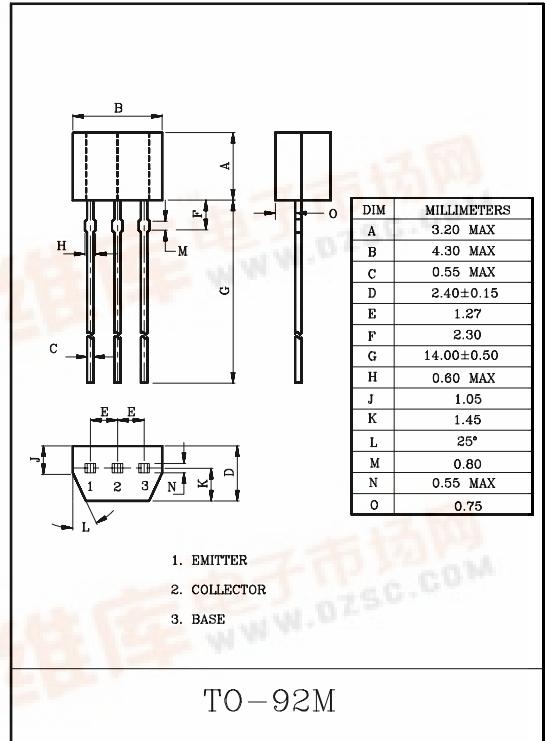
FEATURES
· With Built-in Bias Resistors.
· Simplify Circuit Design.
· Reduce a Quantity of Parts and Manufacturing Process.

EQUIVALENT CIRCUIT

BIAS RESISTOR VALUES

TYPE NO.	R1(kΩ)	R2(kΩ)
KRA107M	10	47
KRA108M	22	47
KRA109M	47	22

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 RATINGS(Ta=25℃)

| CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Voltage	KRA107M ~109M	V_O	-50	V
Input Voltage	KRA107M	V_I	-30, 6	V
	KRA108M		-40, 7	
	KRA109M		-40, 15	
Output Current	KRA107M ~109M	I_O	-100	mA
Power Dissipation		P_D	400	mW
Junction Temperature		T_j	150	℃
Storage Temperature Range		T_{stg}	-55~150	℃
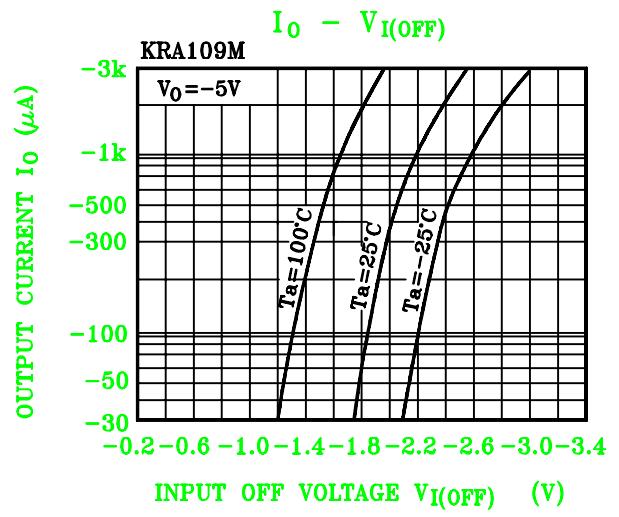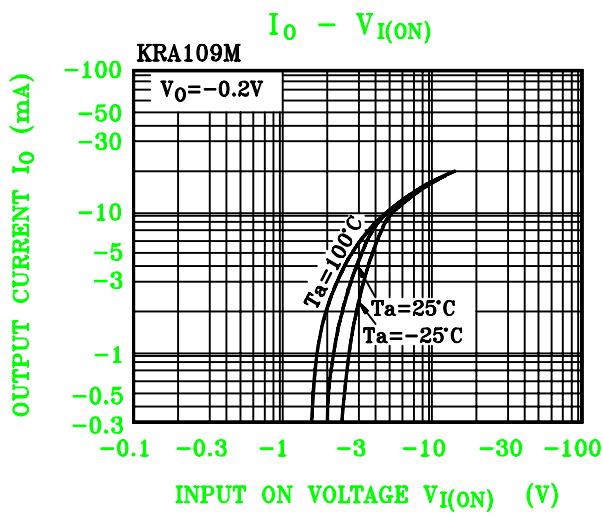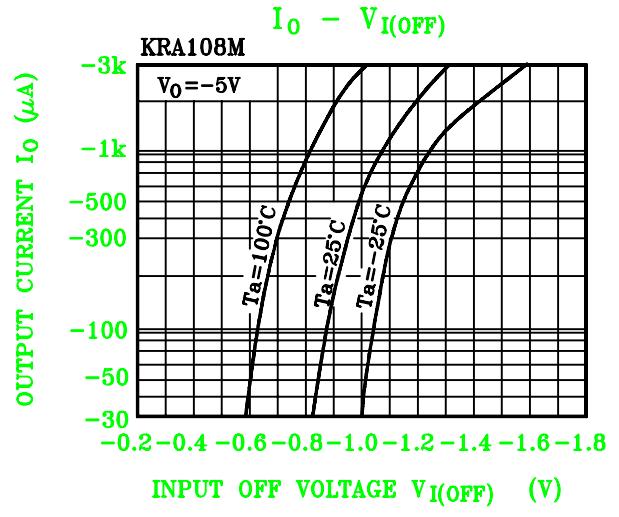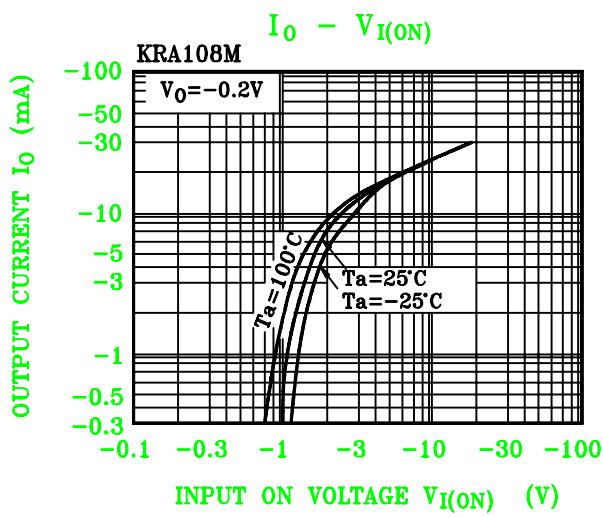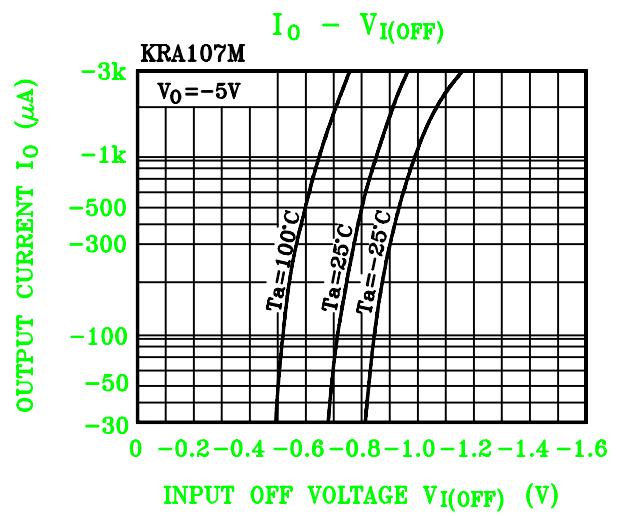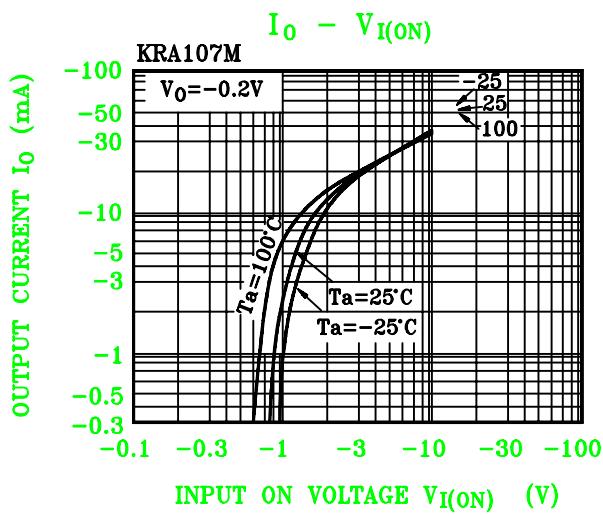
KRA107M～KRA109M

ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Cut-off Current	KRA107M～109M	$I_{O(OFF)}$	V_O=-50V, V_I=0	–	–	-500	nA
DC Current Gain	KRA107M	G_I	V_O=-5V, I_O=-10mA	80	150	–	
	KRA108M			80	150	–	
	KRA109M			70	140	–	
Output Voltage	KRA107M～109M	$V_{O(ON)}$	I_O=-10mA, I_I=-0.5mA	–	-0.1	-0.3	V
Input Voltage (ON)	KRA107M	$V_{I(ON)}$	V_O=-0.2V, I_O=-5mA	–	-1.2	-1.8	V
	KRA108M			–	-1.8	-2.6	
	KRA109M			–	-3.0	-5.8	
Input Votlage (OFF)	KRA107M	$V_{I(OFF)}$	V_O=-5V, I_O=-0.1mA	-0.5	-0.75	–	V
	KRA108M			-0.6	-0.88	–	
	KRA109M			-1.5	-1.82	–	
Transition Frequency	KRA107M～109M	f_T *	V_O=-10V, I_O=-5mA	–	200	–	MHz
Input Current	KRA107M	I_I	V_I=-5V	–	–	-0.88	mA
	KRA108M			–	–	-0.36	
	KRA109M			–	–	-0.16	
Switching Time	Rise Time	KRA107M	t_r		–	0.07	–	μS
		KRA108M			–	0.20	–	
		KRA109M			–	0.38	–	
	Storage Time	KRA107M	t_{stg}	V_O=-5V V_{IN}=-5V R_L=1kΩ	–	1.1	–	
		KRA108M			–	0.3	–	
		KRA109M			–	0.7	–	
	Fall Time	KRA107M	t_f		–	0.35	–	
		KRA108M			–	0.4	–	
		KRA109M			–	0.48	–	

Note : *Characteristic of Transistor Only

KRA107M ~ KRA109M

$I_O - V_{I(ON)}$

KRA107M

$V_O = -0.2V$

OUTPUT CURRENT I_O (mA)

-25
25
100

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT ON VOLTAGE $V_{I(ON)}$ (V)

$I_O - V_{I(OFF)}$

KRA107M

$V_O = -5V$

OUTPUT CURRENT I_O (μA)

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT OFF VOLTAGE $V_{I(OFF)}$ (V)

$I_O - V_{I(ON)}$

KRA108M

$V_O = -0.2V$

OUTPUT CURRENT I_O (mA)

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT ON VOLTAGE $V_{I(ON)}$ (V)

$I_O - V_{I(OFF)}$

KRA108M

$V_O = -5V$

OUTPUT CURRENT I_O (μA)

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT OFF VOLTAGE $V_{I(OFF)}$ (V)

$I_O - V_{I(ON)}$

KRA109M

$V_O = -0.2V$

OUTPUT CURRENT I_O (mA)

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT ON VOLTAGE $V_{I(ON)}$ (V)

$I_O - V_{I(OFF)}$

KRA109M

$V_O = -5V$

OUTPUT CURRENT I_O (μA)

Ta=100°C
Ta=25°C
Ta=-25°C

INPUT OFF VOLTAGE $V_{I(OFF)}$ (V)

KRA107M~KRA109M

$G_I - I_0$

KRA107M

$V_0=-5V$

DC CURRENT GAIN G_I

Ta=100°C
Ta=25°C
Ta=-25°C

OUTPUT CURRENT I_0 (mA)

$G_I - I_0$

KRA108M

$V_0=-5V$

DC CURRENT GAIN G_I

Ta=100°C
Ta=25°C
Ta=-25°C

OUTPUT CURRENT I_0 (mA)

$G_I - I_0$

KRA109M

$V_0=-5V$

DC CURRENT GAIN G_I

Ta=100°C
Ta=25°C
Ta=-25°C

OUTPUT CURRENT I_0 (mA)