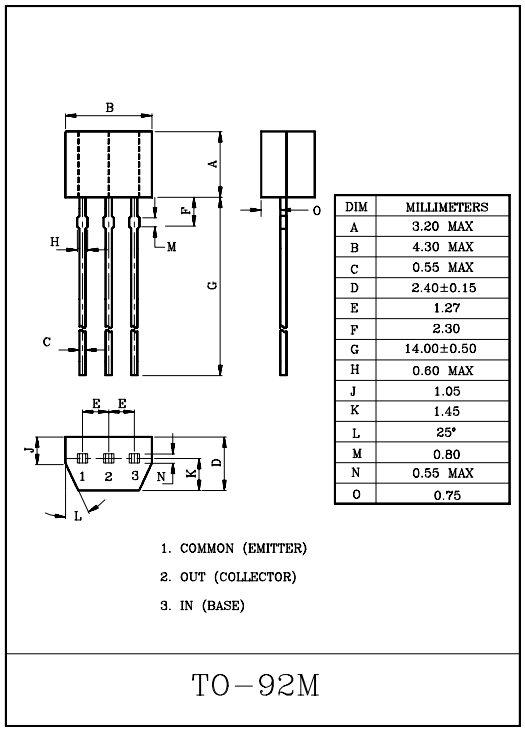
SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION

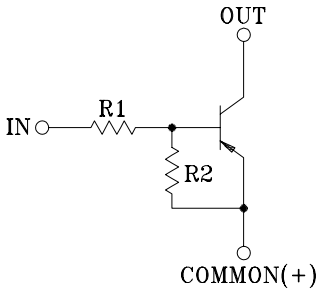
FEATURES
- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.



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

TO-92M

EQUIVALENT CIRCUIT



BIAS RESISTOR VALUES

TYPE NO.	R1(kΩ)	R2(kΩ)
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 (T_a=25℃)

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		I_O	-100	mA
Power Dissipation		P_D	400	mW
Junction Temperature		T_j	150	℃
Storage Temperature Range	KRA116M~122M	T_{stg}	-55~150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

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=-100μA	-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