DESCRIPTION

The KRC101S~KRC106S are available in SOT-23 package.

FEATURE

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

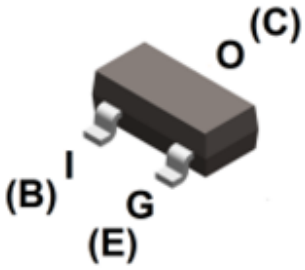
ORDERING INFORMATION

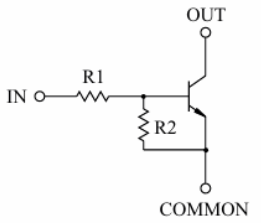
Package Type	Part Number
SOT-23	KRC101S
	KRC102S
	KRC103S
	KRC104S
	KRC105S
	KRC106S
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

BIAS RESISTOR VALUES

Package	R1(kΩ)	R2(kΩ)
KRC101S	4.7	4.7
KRC102S	10	10
KRC103S	22	22
KRC104S	47	47
KRC105S	2.2	47
KRC106S	4.7	47

PIN DESCRIPTION





PIN#	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified

Parameter		Value
V_O, Output Voltage	KRC101S~KRC106S	50V
V_{CC}, Supply Voltage	KRC102S	50V
	KRC105S	50V
V_I, Input Voltage	KRC101S	-10V ~ 20V
	KRC102S	-10V ~ 40V
	KRC103S	-10V ~ 40V
	KRC104S	-10V ~ 40V
	KRC105S	-5V ~ 12V
	KRC106S	-5V ~ 20V
I_O, Output Current	KRC101S, KRC103S, KRC104S, KRC105S, KRC106S	100mA
	KRC102S	50mA
$I_{C(MAX)}$, Collector Current	KRC102S , KRC105S	100mA
P_D, Power Dissipation	KRC101S~KRC106S	200mW
T_J, Junction Temperature	KRC101S~KRC106S	150°C
T_{stg}, Storage Temperature Range	KRC101S~KRC106S	-55°C ~ +150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified

Parameter		Symbol	Conditions	Min.	TYP.	Max.	Unit
Output Cut-off Current	KRC101S~KRC106S	$I_{O(OFF)}$	V_O = 50V, V_I= 0	-	-	500	nA
DC Current Gain	KRC101S	G_I	V_O = 5V, I_O= 0	30	55	-	nA
	KRC102S			50	80	-	
	KRC103S			70	120	-	
	KRC104S			80	200	-	
	KRC105S			80	200	-	
	KRC106S			80	200	-	
Output Voltage	KRC101S~KRC106S	$V_{O(ON)}$	I_O = 10mA, I_I = 0.5mA	-	0.10	0.30	V
Input Voltage (ON)	KRC101S	$V_{I(ON)}$	V_O = 0.2V, I_O= 5mA	-	1.50	2	V
	KRC102S			-	1.80	2.40	
	KRC103S			-	2.10	3	
	KRC104S			-	2.80	5	
	KRC105S			-	0.80	1.10	
	KRC106S			-	0.90	1.30	
Input Voltage (OFF)	KRC101S	$V_{I(OFF)}$	V_O = 5V, I_O= 0.1mA	1	1.20	-	V
	KRC102S			1	1.20	-	
	KRC103S			1	1.20	-	
	KRC104S			1	1.20	-	
	KRC105S			0.50	0.65	-	
	KRC106S			0.50	0.65	-	
Transition Frequency	KRC101S~KRC106S	f_T	V_O = 10V, I_O= 5mA	-	200	-	MHz
Input Current	KRC101S	I_I	V_I = 5V	-	-	1.80	mA
	KRC102S			-	-	0.88	
	KRC103S			-	-	0.36	
	KRC104S			-	-	0.18	
	KRC105S			-	-	3.60	
	KRC106S			-	-	1.80	
Input Resistor	KRC101S	R1	-	3.29	4.70	6.11	kΩ
	KRC102S			7	10	13	
	KRC103S			15.40	22	28.60	
	KRC104S			32.90	47	61.10	

	KRC105S			1.54	2.20	2.86	
	KRC106S			3.29	4.70	6.11	
Resistor Ratio	KRC101S	R2/R1	-	0.80	1	1.20	kΩ
	KRC102S			0.80	1	1.20	
	KRC103S			0.80	1	1.20	
	KRC104S			0.80	1	1.20	
	KRC105S			17	21	26	
	KRC106S			8	10	12	
Rise Time	KRC101S	t_T	V_O =5V, V_{IN}= 5V, RL= 1kΩ	-	0.03	-	μS
	KRC102S			-	0.065	-	
	KRC103S			-	0.12	-	
	KRC104S			-	0.22	-	
	KRC105S			-	0.01	-	
	KRC106S			-	0.03	-	
Storage Time	KRC101S	T_{stg}		-	2	-	μS
	KRC102S			-	2	-	
	KRC103S			-	2	-	
	KRC104S			-	2	-	
	KRC105S			-	2	-	
	KRC106S			-	2	-	
Fall Time	KRC101S	t_f		-	0.12	-	μS
	KRC102S			-	0.36	-	
	KRC103S			-	0.35	-	
	KRC104S			-	0.60	-	
	KRC105S			-	0.10	-	
	KRC106S			-	0.19	-	

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. I_O vs. $V_{I(ON)}$

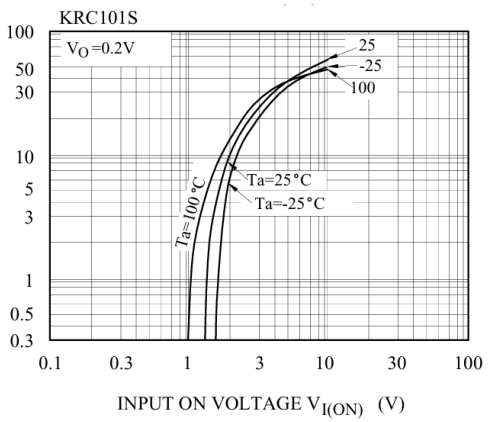


Fig 2. I_O vs. $V_{I(ON)}$

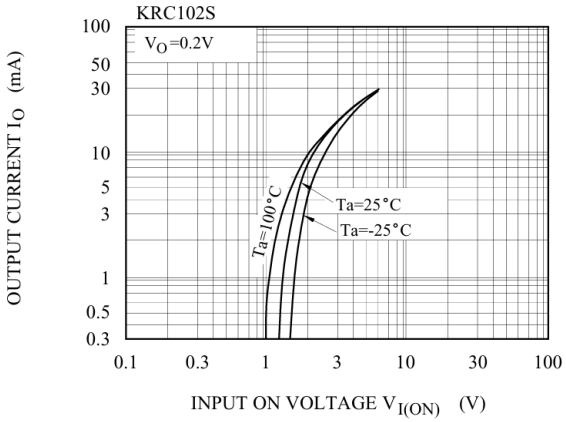


Fig 3. I_O vs. $V_{I(ON)}$

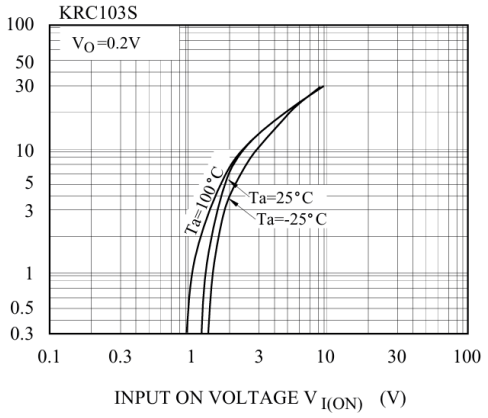


Fig 4. I_O vs. $V_{I(ON)}$

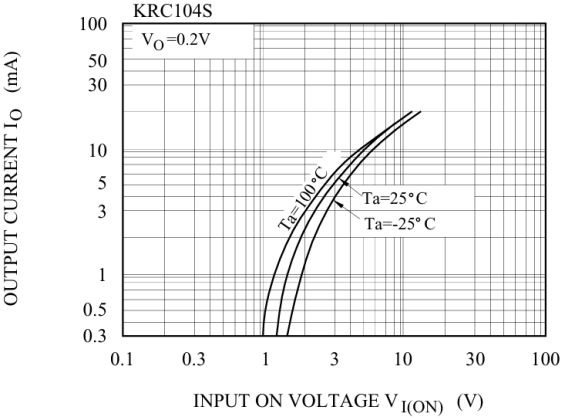


Fig 5. I_O vs. $V_{I(ON)}$

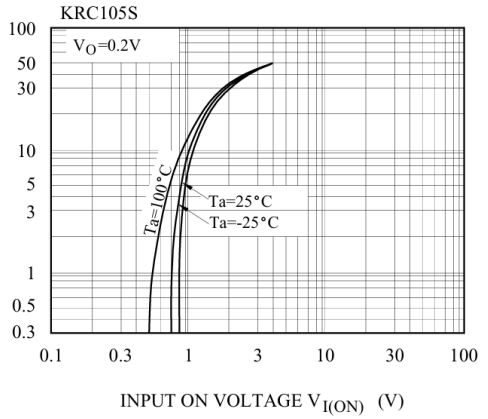


Fig 6. I_O vs. $V_{I(ON)}$

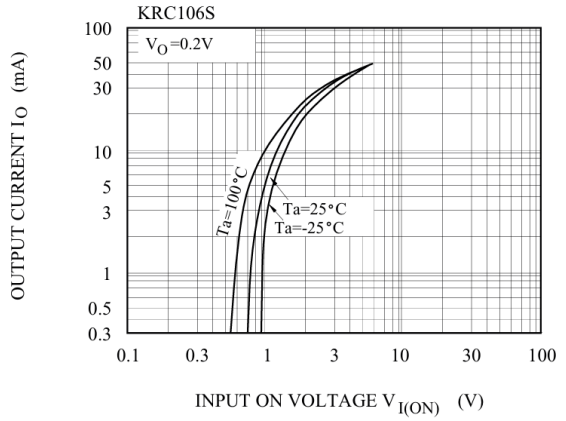


Fig 7. I_O vs. $V_{I(OFF)}$

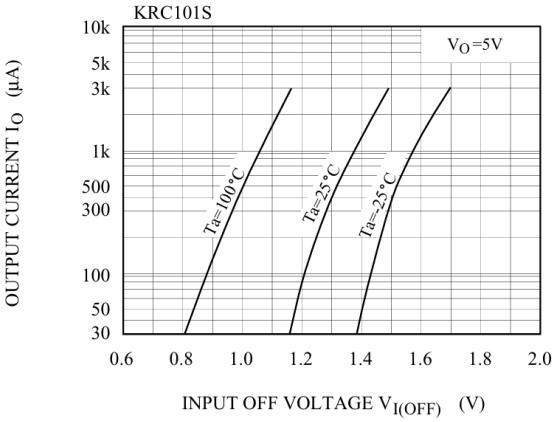


Fig 8. I_O vs. $V_{I(OFF)}$

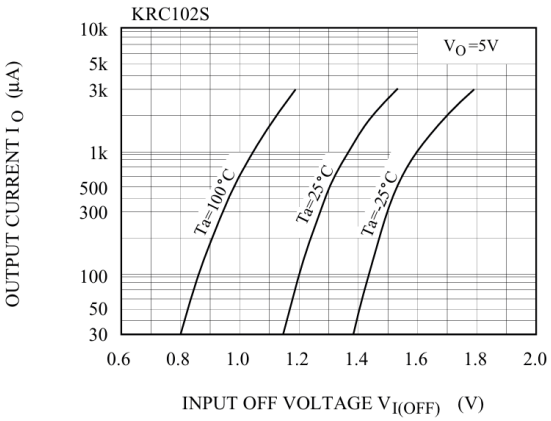


Fig 9. I_O vs. $V_{I(OFF)}$

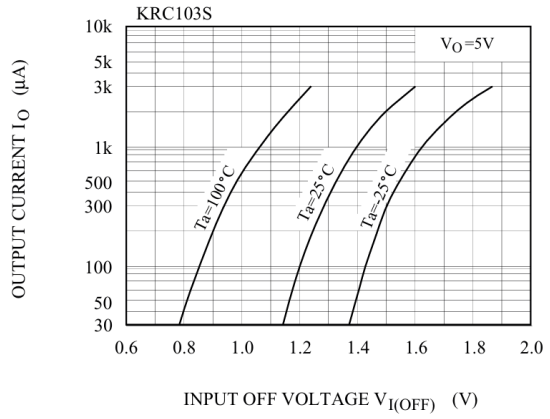


Fig 10. I_O vs. $V_{I(OFF)}$

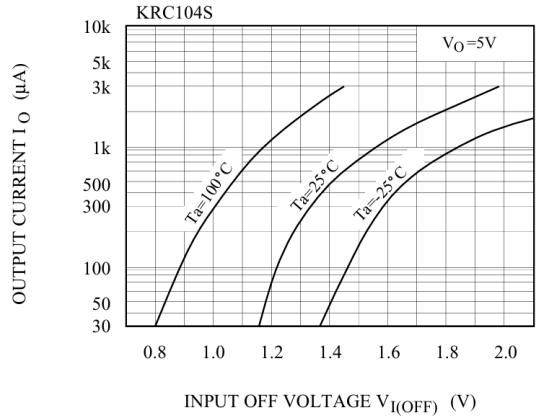


Fig 11. I_O vs. $V_{I(OFF)}$

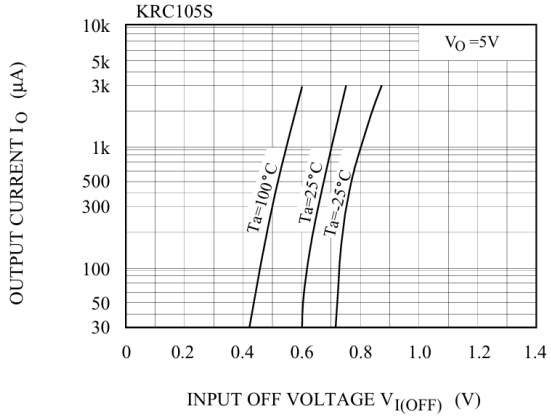


Fig 12. I_O vs. $V_{I(OFF)}$

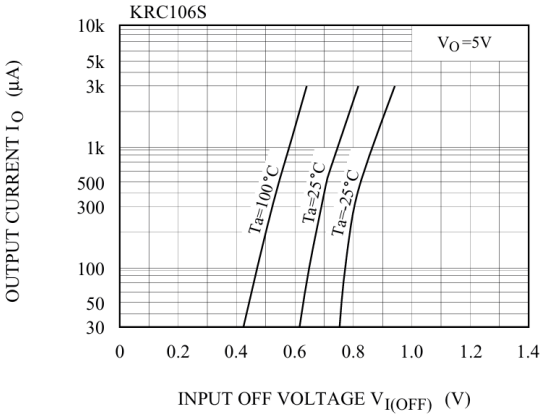


Fig 13. G_I vs. I_O

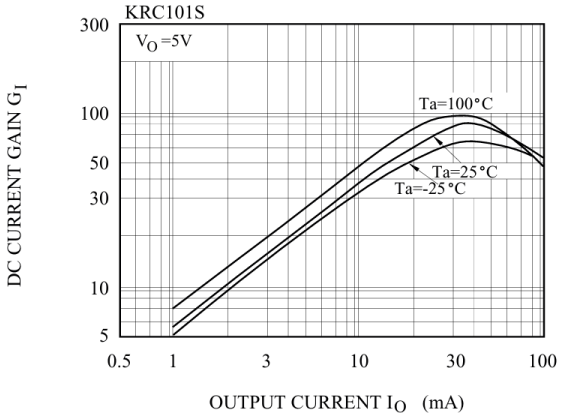


Fig 14. G_I vs. I_O

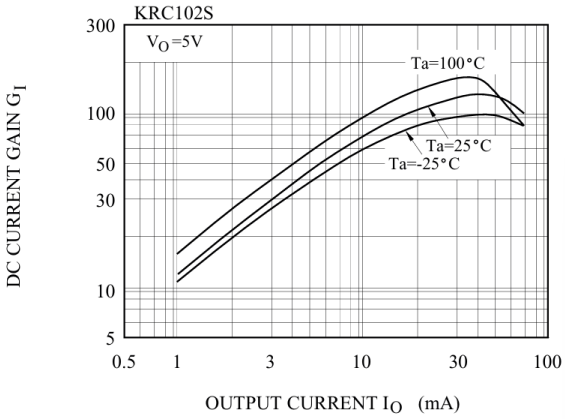


Fig 15. G_I vs. I_O

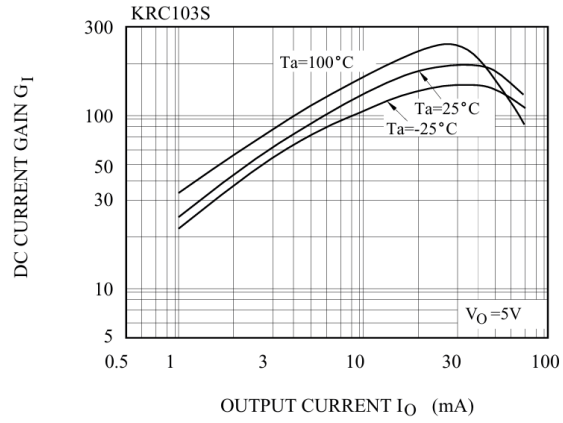


Fig 16. G_I vs. I_O

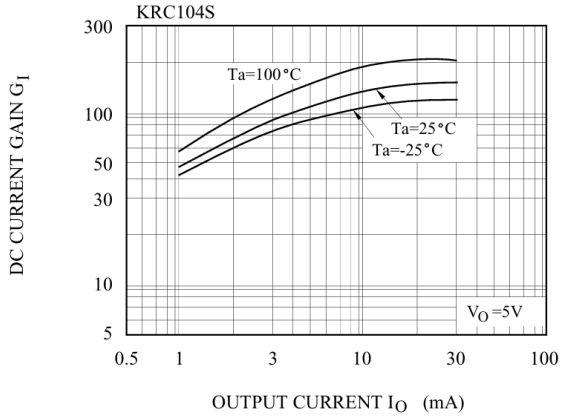


Fig 17. G_I vs. I_O

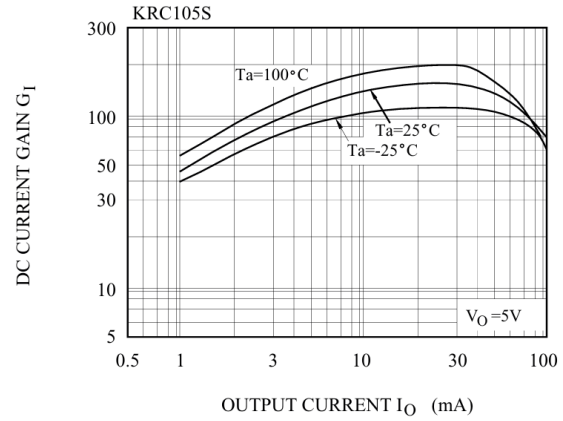
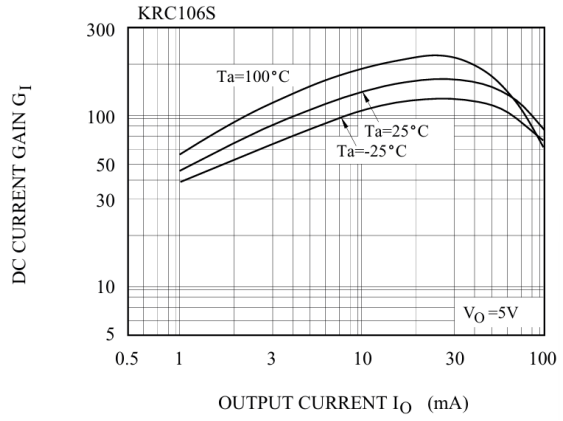
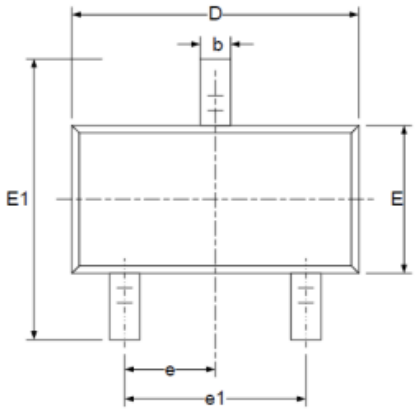


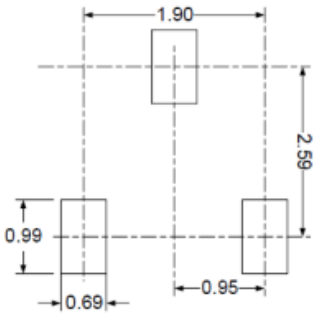
Fig 18. G_I vs. I_O



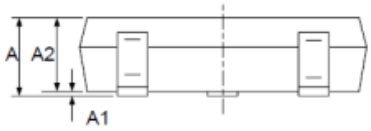
PACKAGE INFORMATION

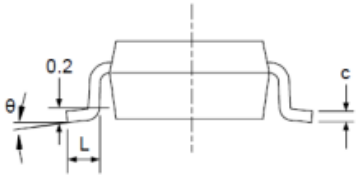
Dimension in SOT-23 Package (Unit: mm)





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950 BSC	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°

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