SHANGHAI SINO-IC
MICROELECTRONICS CO., LTD.

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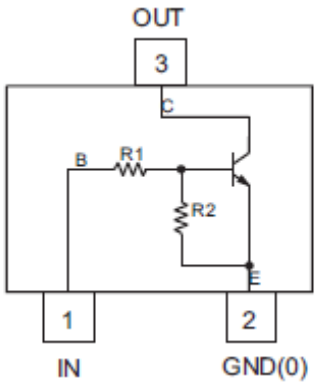
SEC113ZU

100mA / 50V Digital transistors

Revision:A

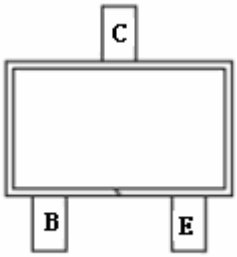
Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- Each bias resistor is a thin-film resistor. Since they are completely insulated, the input can be negatively biased. The insulation also eliminates most of the parasitic effects.
- Only the on / off conditions need to be set for operation, making the device design easy.



Applications

- Inverter, Interface, Driver



SOT-323

Construction

- NPN epitaxial planar silicon transistor (Resistor built-in type)

Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-5 to +10	V
Output current	I_O	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	P_D	200	mW
Junction temperature	T_J	150	℃
Storage temperature	T_{stg}	-55 to +150	℃

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	625	℃/W

Electrical characteristics (Ta=25℃)

Parameter	Symbol	Conditions	Min..	Typ.	Max.	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V, I_O=100υA	0.3	-	-	
	$V_{I(on)}$	V_O=0.3V, I_O=20mA	-	-	3	V

Output voltage	$V_{O(on)}$	I_O/I_I=10mA/0.5mA	-	0.1	0.3	V
Input current	I_I	V_I=5V	-	-	7.2	mA
Output current	$I_{O(off)}$	V_{CC}=50V, V_I=0V	-	-	0.5	μA
DC current gain	G_I	V_O=5V, I_O=5mA	33	-	-	-
Input resistance	R_1		0.7	1	1.3	KΩ
Resistance ratio	R_2/R_1	-	8	10	12	-
Transition frequency	f_T	V_{CE}=10V, I_E=–5mA, f=100MHz	-	250	-	MHz

*Characteristics of built-in transistor

TYPICAL CURVES

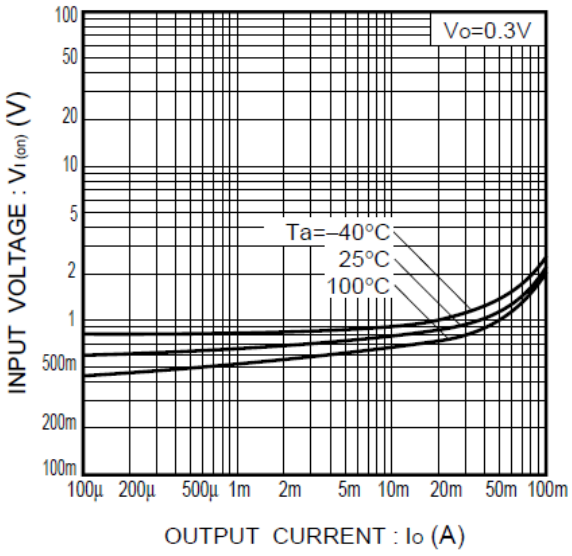


Fig.1 Input voltage vs. output current (ON characteristics)

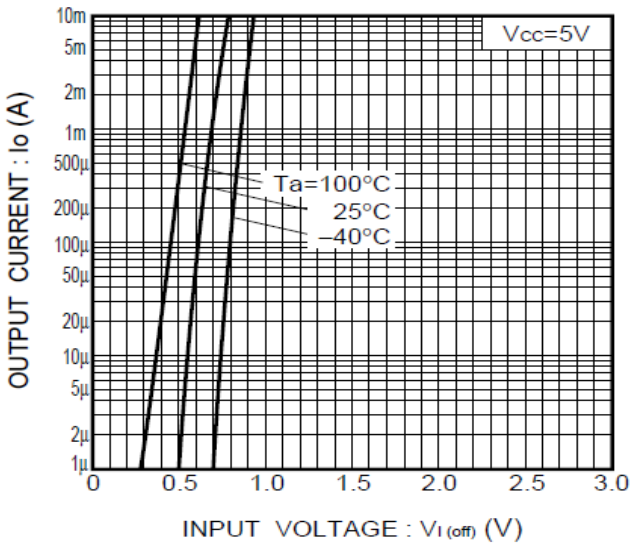


Fig.2 Output current vs. input voltage (OFF characteristics)

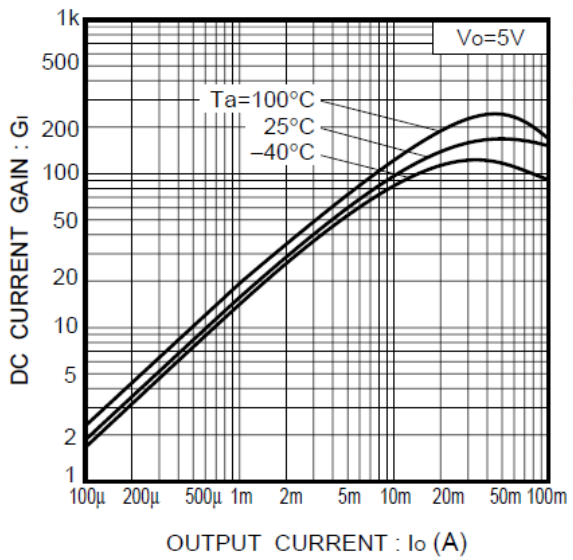


Fig.3 DC current gain vs. output current

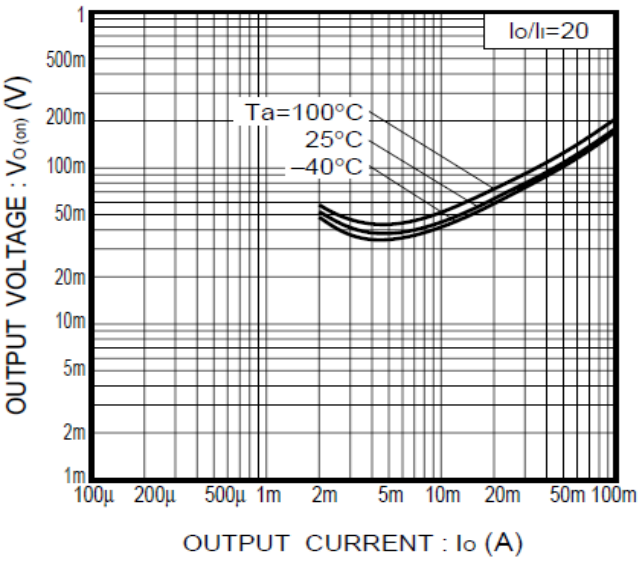
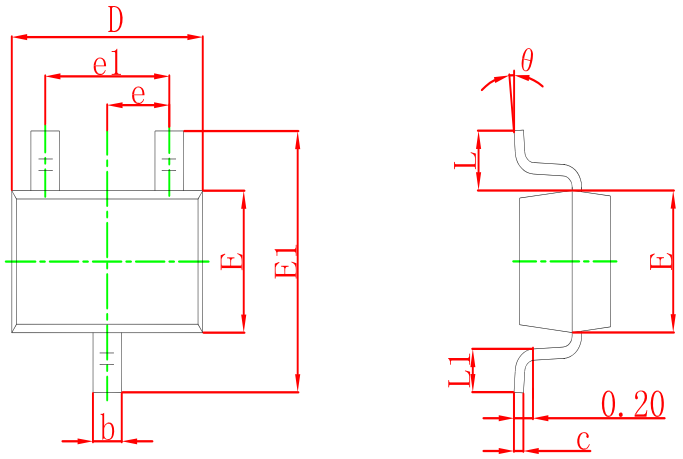
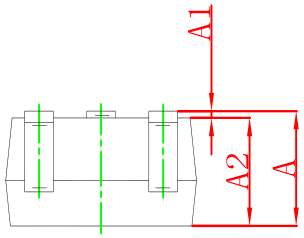


Fig.4 Output voltage vs. output current

SOT-323 Suggested Pad Layout





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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