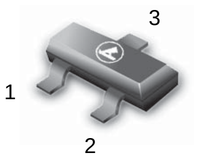
Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTB113ZLT1G
S-LDTB113ZLT1G



SOT-23

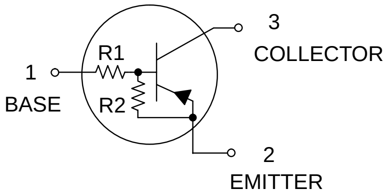
- **Applications**

Inverter, Interface, Driver

- **Features**

1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
3) Only the on/off conditions need to be set for operation, making the device design easy.

- We declare that the material of product compliance with RoHS requirements.
- S - Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



●**Absolute maximum ratings** (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	–50	V
Input voltage	V_{IN}	–10 to +5	V
Output current	I_C	–500	mA
Power dissipation	P_D	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	–55 to +150	℃

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTB113ZLT1G S-LDTB113ZLT1G	K8	1	10	3000/Tape & Reel
LDTB113ZLT3G S-LDTB113ZLT3G	K8	1	10	10000/Tape & Reel

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	–0.3	V	V_{CC}=–5V, I_O=–100µA
	$V_{I(on)}$	–3	–	–		V_O=–0.3V, I_O=–20mA
Output voltage	$V_{O(on)}$	–	–	–0.3	V	I_O/I_I=–50mA/–2.5mA
Input current	I_I	–	–	–7.2	mA	V_I= –5V
Output current	$I_{O(off)}$	–	–	–0.5	µA	V_{CC}=–50V, V_I=0V
DC current gain	G_I	56	–	–	–	V_O=– 5V, I_O=–50mA
Input resistance	R_1	0.7	1	1.3	kΩ	–
Resistance ratio	R_2/R_1	8	10	12	–	–
Transition frequency	f_T	–	200	–	MHz	V_{CE}=–10V, I_E=50mA, f=100MHz *

∗ Transition frequency of the device

●Electrical characteristic curves

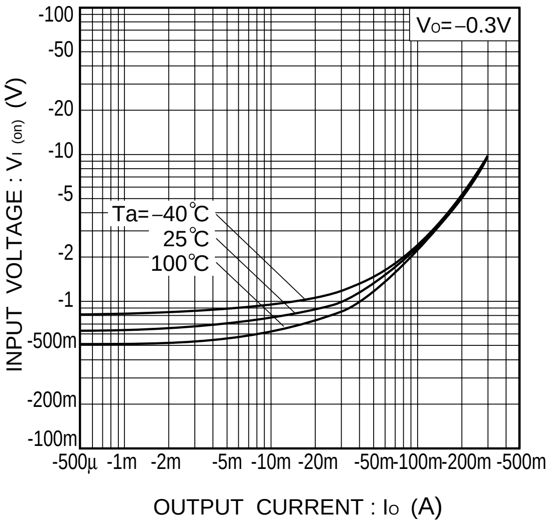


Fig.1 Input voltage vs. output current (ON characteristics)

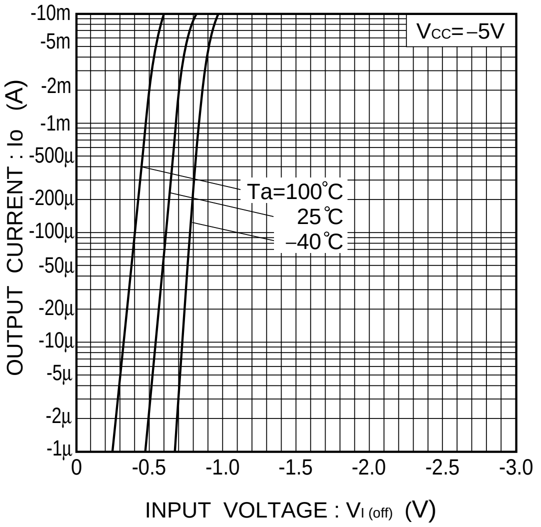


Fig.2 Output current vs. input voltage (OFF characteristics)

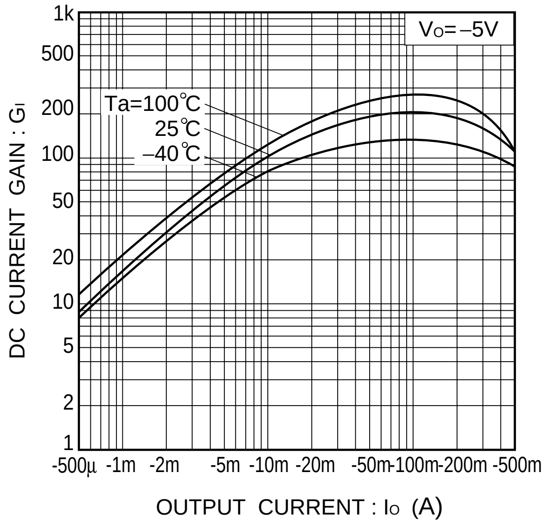


Fig.3 DC current gain vs. output current

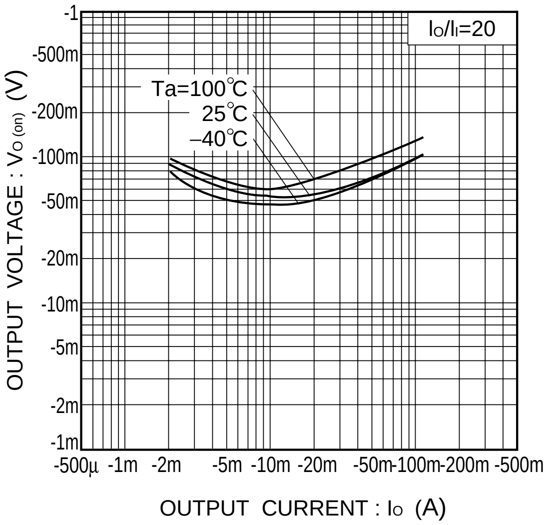
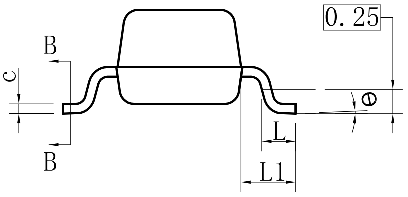
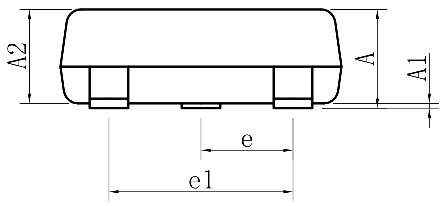


Fig.4 Output voltage vs. output current

OUTLINE AND DIMENSIONS





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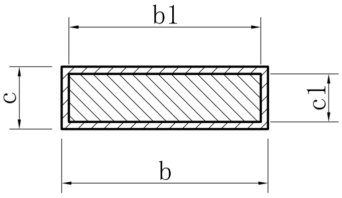
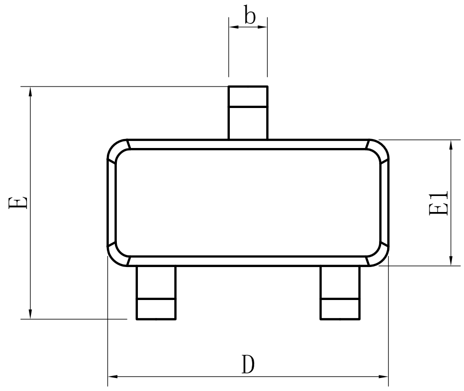
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			



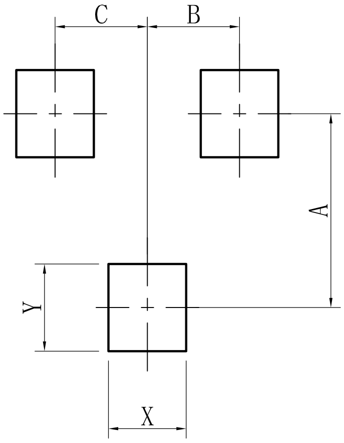
SECTION B-B



GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um

SOLDERING FOOTPRINT



SOT-23	
DIM	(mm)
X	0.80
Y	0.90
A	2.00
B	0.95
C	0.95

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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