

# Bias Resistor Transistor

## PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

**LDTA124XLT1G**

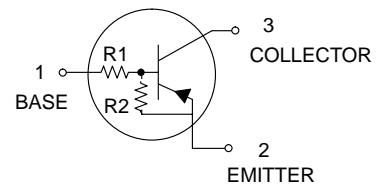
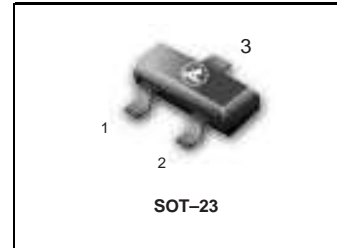
● **Applications**

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.



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

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>CC</sub>	-50	V
Input voltage	V <sub>i</sub>	-40 to +10	V
Output current	I <sub>o</sub>	-20	mA
	I <sub>C(Max.)</sub>	-100	
Power dissipation	P <sub>D</sub>	150	mW
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

**DEVICE MARKING AND RESISTOR VALUES**

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTA124XLT1G	A6L	22	47	3000/Tape & Reel
LDTA124XLT3G	A6L	22	47	10000/Tape & Reel

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>I(off)</sub>	-	-	-0.5	V	V <sub>CC</sub> = -5V, I <sub>o</sub> = -100μA
	V <sub>I(on)</sub>	-3	-	-		V <sub>o</sub> = -0.3V, I <sub>o</sub> = -1mA
Output voltage	V <sub>O(on)</sub>	-	-0.1	-0.3	V	I <sub>o</sub> = -5mA, I <sub>i</sub> = -0.25mA
Input current	I <sub>i</sub>	-	-	-0.15	mA	V <sub>i</sub> = -5V
Output current	I <sub>O(off)</sub>	-	-	-0.5	μA	V <sub>CC</sub> = -50V, V <sub>i</sub> =0V
DC current gain	G <sub>i</sub>	82	-	-	-	I <sub>o</sub> = -5mA, V <sub>o</sub> = -5V
Input resistance	R <sub>1</sub>	15.4	22	28.6	kΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	1.7	2.1	2.6	-	-
Transition frequency	f <sub>T</sub> *	-	250	-	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> =5mA, f=100MHz

\* Characteristics of built-in transistor

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● **Electrical characteristic curves**

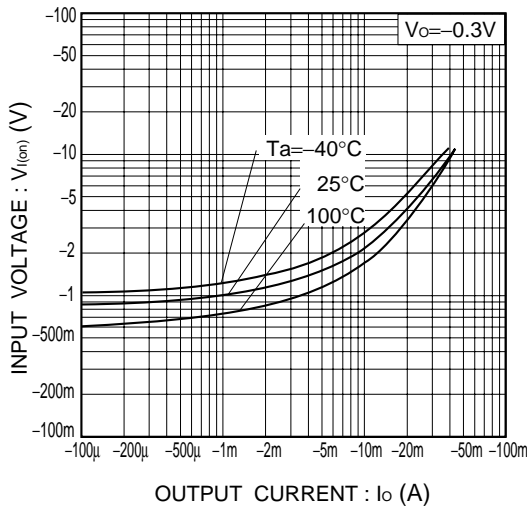


Fig.1 Input voltage vs. output current (ON characteristics)

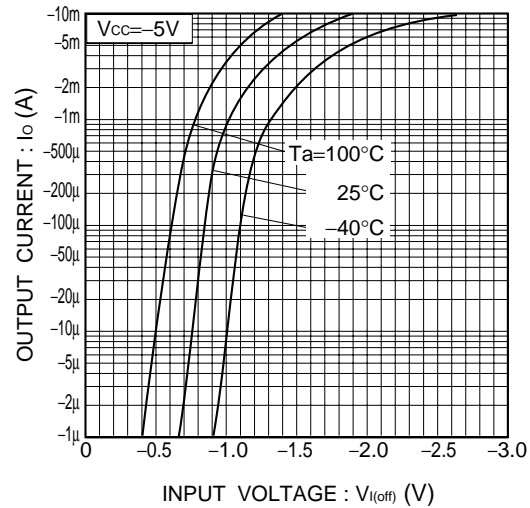


Fig.2 Output current vs. input voltage (OFF characteristics)

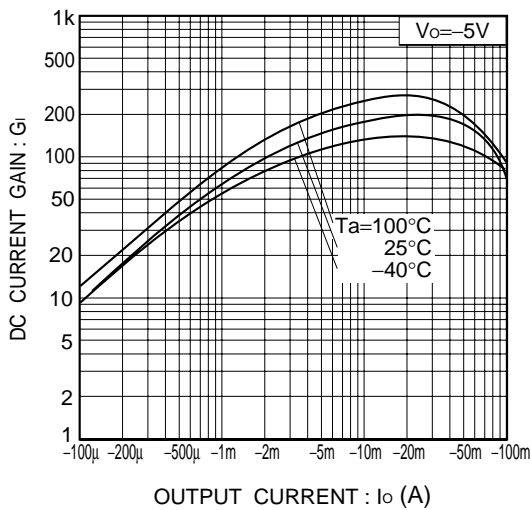


Fig.3 DC current gain vs. output current

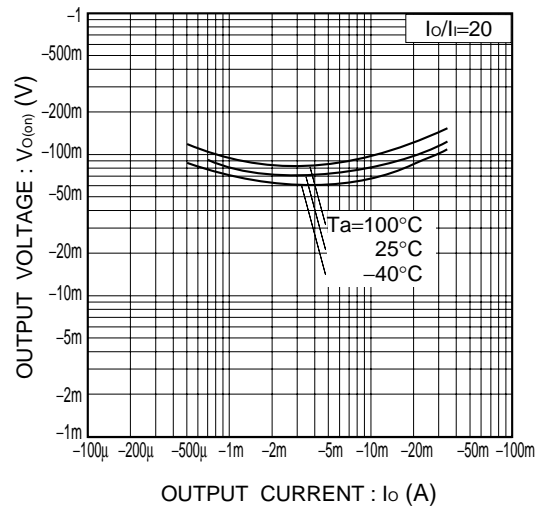


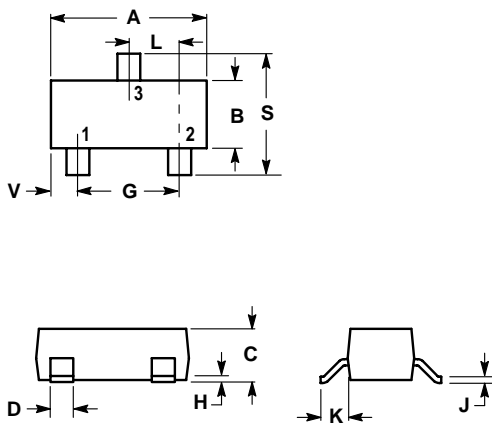
Fig.4 Output voltage vs. output current

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**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

