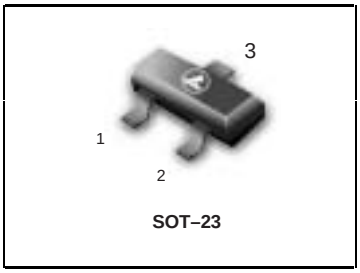
Bias Resistor Transistor

PNP Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

LDTA144ELT1G



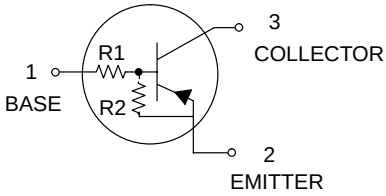
●Applications

Inverter, Interface, Driver

●Features

1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
3) Only the on / off conditions need to be set for operation, making the device design easy.
4) Higher mounting densities can be achieved.

● We declare that the material of product compliance with RoHS requirements.



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	–50	V
Input voltage	V_I	–40 to +10	V
Output current	I_O	–30	mA
	$I_{C(Max.)}$	–100	
Power dissipation	P_D	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTA144ELT1G	A6C	47	47	3000/Tape & Reel
LDTA144ELT3G	A6C	47	47	10000/Tape & Reel

●External characteristics (Unit: mm)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	–	–	–0.5	V	V_{CC}=–5V, I_O=–100μA
	$V_{I(on)}$	–3.0	–	–		V_O=–0.3V, I_O=–2mA
Output voltage	$V_{O(on)}$	–	–0.1	–0.3	V	I_O / I_I=–10mA / –0.5mA
Input current	I_I	–	–	–0.18	mA	V_I=–5V
Output current	$I_{O(off)}$	–	–	–0.5	μA	V_{CC}=–50V, V_I=0V
DC current gain	G_I	68	–	–	–	V_O=–5V, I_O=–5mA
Input resistance	R_1	32.9	47	61.1	kΩ	–
Resistance ratio	R_2/R_1	0.8	1	1.2	–	–
Transition frequency	f_T *	–	250	–	MHz	V_{CE}=–10V, I_E=5mA, f=100MHz

* Characteristics of built-in transistor

LDTA144ELT1G

●Electrical characteristics curves

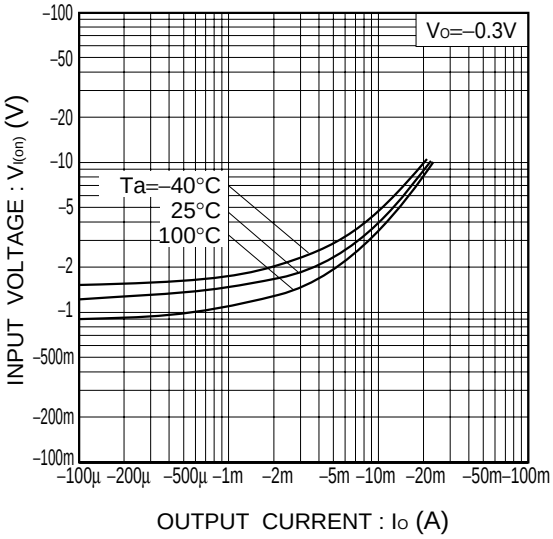


Fig.1 Input voltage vs. output current (ON characteristics)

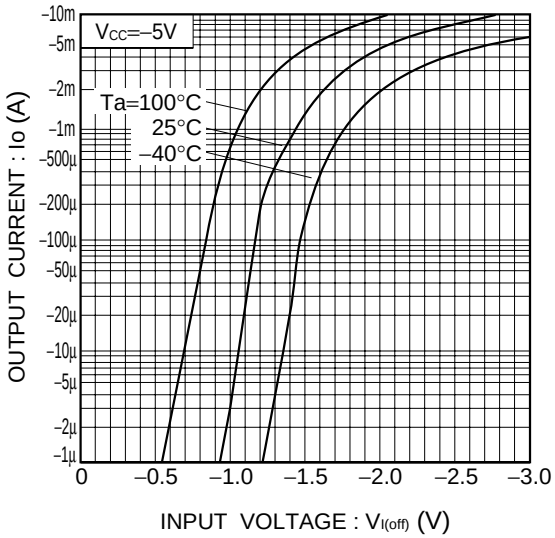


Fig.2 Output current vs. input voltage (OFF characteristics)

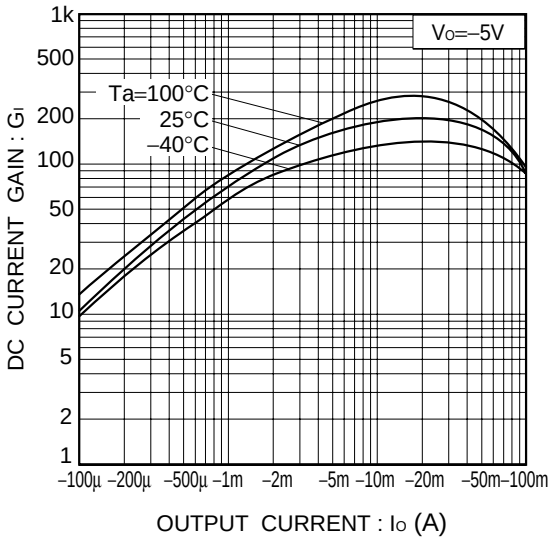


Fig.3 DC current gain vs. output current

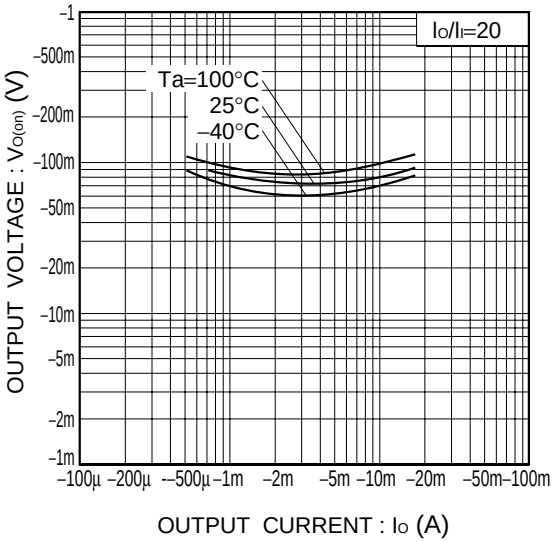
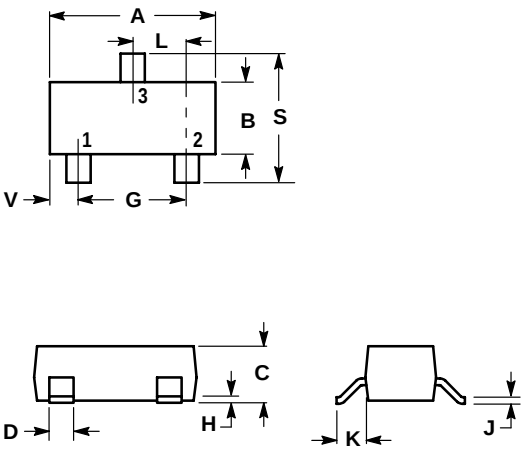


Fig.4 Output voltage vs. output current

LDTA144ELT1G

SOT–23



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