

# Bias Resistor Transistor

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

- **Applications**  
Inverter, Interface, Driver

- **Features**

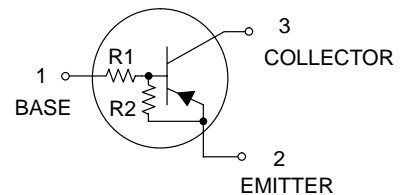
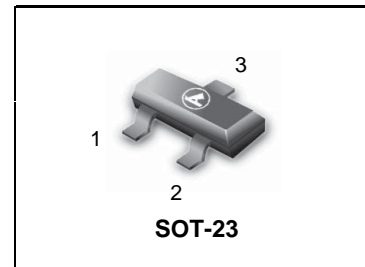
- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost 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 <sub>CC</sub>	-50	V
Input voltage	V <sub>IN</sub>	-30 to +10	V
Output current	I <sub>C</sub>	-500	mA
Power dissipation	P <sub>D</sub>	200	mW
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

**LDTB143ELT1G**  
**S-LDTB143ELT1G**



### DEVICE MARKING AND RESISTOR VALUES

Device	Marking	R1 (K)	R2 (K)	Shipping
LDTB143ELT1G S-LDTB143ELT1G	K6	4.7	4.7	3000/Tape & Reel
LDTB143ELT3G S-LDTB143ELT3G	K6	4.7	4.7	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	V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA
Output voltage	V <sub>O(on)</sub>	-	-0.1	-0.3	V	I <sub>O</sub> /I <sub>I</sub> = -50mA/-2.5mA
Input current	I <sub>I</sub>	-	-	-1.8	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>	47	-	-	-	V <sub>O</sub> = -5V, I <sub>O</sub> = -50mA
Input resistance	R <sub>1</sub>	3.29	4.7	6.11	kΩ	-
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>	0.8	1	1.2	-	-
Transition frequency	f <sub>T</sub> *	-	200	-	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> =50mA, f=100MHz

\* Characteristics of built-in transistor

LDTB143ELT1G ; S-LDTB143ELT1G

●Electrical characteristic curves

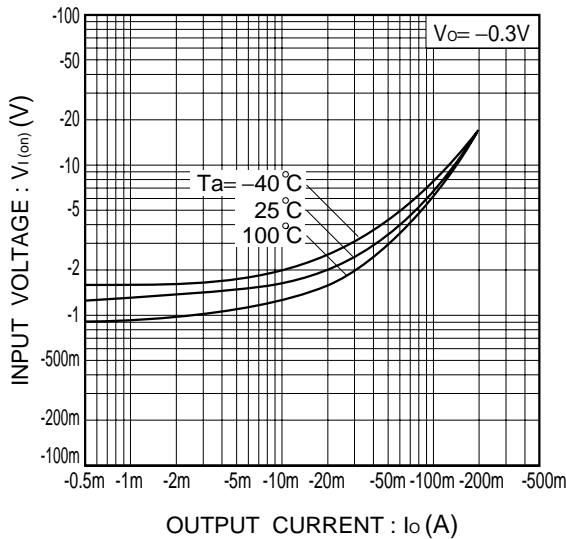


Fig.1 Input voltage vs. output current

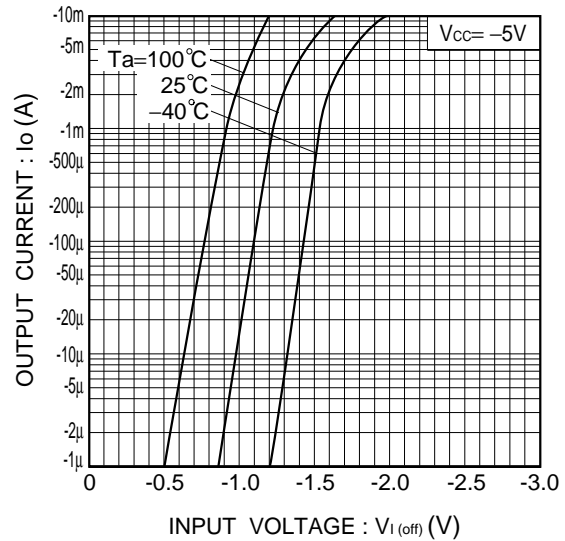


Fig.2 Output current vs. input voltage (OFF characteristics)

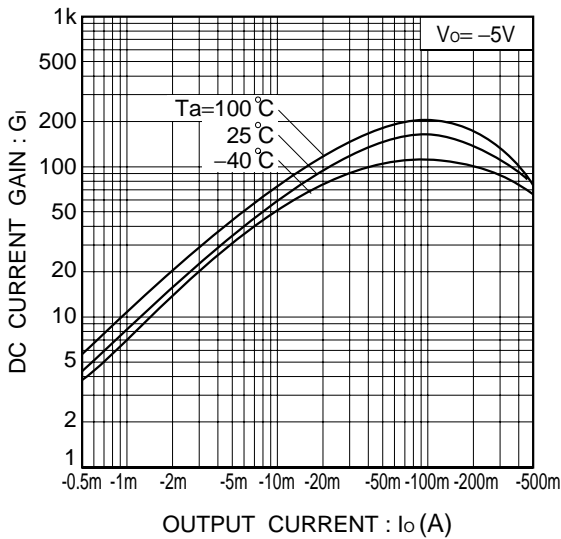


Fig.3 DC current gain vs. output current

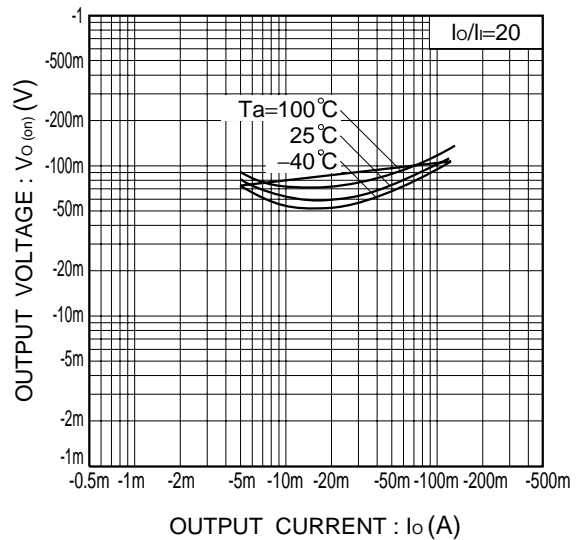


Fig.4 Output voltage vs. output current



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[>>LRC\(乐山无线电\)](#)