

- 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 device design easy.

The top diagram shows a BJT voltage follower circuit. The input terminal 'IN' is connected to a resistor R_1 , which is connected to the base of an NPN transistor. A second resistor R_2 connects the base to ground, labeled 'GND(+)' with a ground symbol. The emitter is also connected to 'GND(+)', and the collector is connected to the output terminal 'OUT'.

The bottom diagram shows an op-amp voltage follower circuit. The input terminal 'IN' is connected to the non-inverting input of an op-amp. The op-amp's output is connected back to its inverting input, forming a voltage follower configuration. The inverting input is also connected to ground, labeled 'GND(+)' with a ground symbol. The output terminal 'OUT' is taken from the op-amp's output.

(1) GND
(2) OUT
(3) IN

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits(DTA123E□)				Unit
		E	UA	KA	SA	
Supply voltage	V _{CC}	-50				V
Input voltage	V _{IN}	-12~+10				V
Output current	I _o	-100				mA
	I _{C(Max.)}	-100				
Power dissipation	P _d	150	200		300	mW
Junction temperature	T _j	150				℃
Storage temperature	T _{stg}	-55~+150				℃

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V _{I(off)}	—	—	-0.5	V	V _{CC} =-5V, I _O =-100 μA
	V _{I(on)}	-3	—	—		V _O =-0.3V, I _O =-20mA
Output voltage	V _{O(on)}	—	-0.1	-0.3	V	I _O /I _I =-10mA/-0.5mA
Input current	I _I	—	—	-3.8	mA	V _I =-5V
Output current	I _{O(off)}	—	—	-0.5	μA	V _{CC} =-50V, V _I =0V
DC current gain	G _I	20	—	—	—	V _O =-5V, I _O =-20mA
Input resistance	R _I	1.54	2.2	2.86	kΩ	—
Resistance ratio	R ₂ /R ₁	0.8	1	1.2	—	—
Transition frequency	f _r	—	250	—	MHz	V _{CE} =-10V, I _E =5mA, f=100MHz *

* Transition frequency of the device

●Packaging specifications

Part No.	Package	EMT3	UMT3	SMT3	SPT
	Package type	Taping	Taping	Taping	Taping
	Code	TL	T106	T146	TP
	Basic ordering unit (pieces)	3000	3000	3000	5000
DTA123EE		○	—	—	—
DTA123EUA		—	○	—	—
DTA123EKA		—	—	○	—
DTA123ESA		—	—	—	○

● Electrical characteristic curves

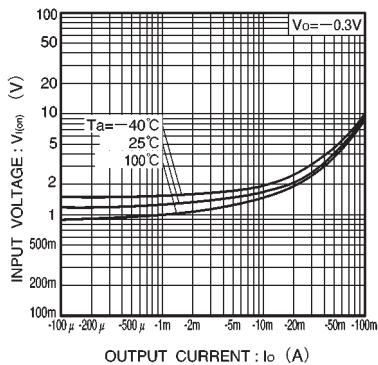


Fig.1 Input voltage vs. output current (ON characteristics)

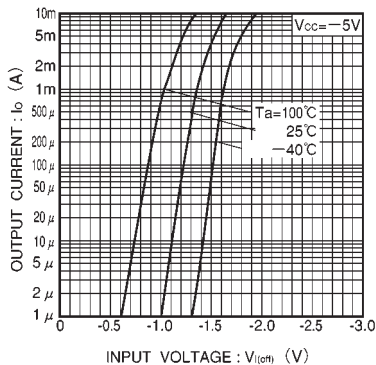


Fig.2 Output current vs. input voltage (OFF characteristics)

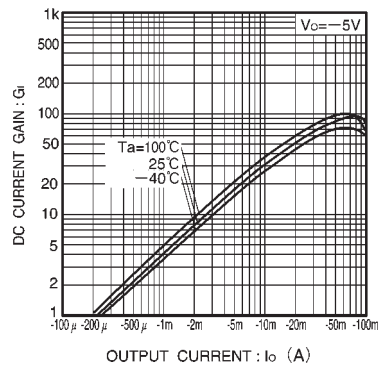


Fig.3 DC current gain vs. output current

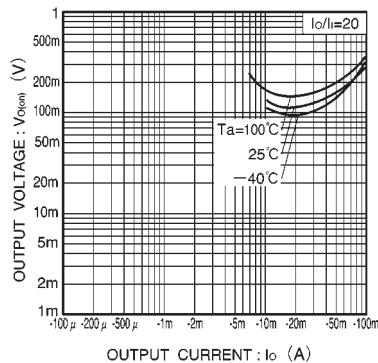


Fig.4 Output voltage vs. output current