

**DTA143EE / DTA143EUA / DTA143EKA /
DTA143ECA / DTA143ESA**

- 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.

PNP digital transistor
(with built-in resistors)

The top diagram shows a common-emitter BJT amplifier. The input signal (IN) is connected to the base of an NPN transistor through a resistor R_1 . A resistor R_2 connects the base to ground (GND(+)). The emitter is grounded, and the output (OUT) is taken from the collector. The bottom diagram shows an inverting op-amp configuration. The input signal (IN) is connected to the inverting input of an operational amplifier through a resistor. The non-inverting input is grounded (GND(+)). The output (OUT) is taken from the op-amp's output terminal.

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

Abbreviated symbol : 13

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(2) OUT
(3) IN

ROHM : SPT
EIAJ : SC-72

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits(DTA143E□)					Unit
		E	UA	KA	CA	SA	
Supply voltage	V _{CC}	-50					V
Input voltage	V _{IN}	-30~+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					°C
Storage temperature	T _{stg}	-55~+150					°C

●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	—	—	-1.8	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 = -10mA
Input resistance	R _I	3.29	4.7	6.11	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	SST3	SPT
	Package type	Taping	Taping	Taping	Taping	Taping
	Code	TL	T106	T146	T116	TP
	Basic ordering unit (pieces)	3000	3000	3000	3000	5000
DTA143EE		○	—	—	—	—
DTA143EUA		—	○	—	—	—
DTA143EKA		—	—	○	—	—
DTA143ECA		—	—	—	○	—
DTA143ESA		—	—	—	—	○

●Electrical characteristic curves

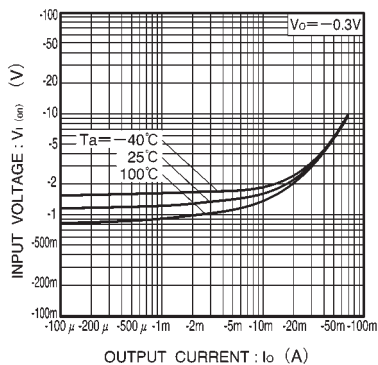


Fig.1 Input voltage vs. output current (ON characteristics)

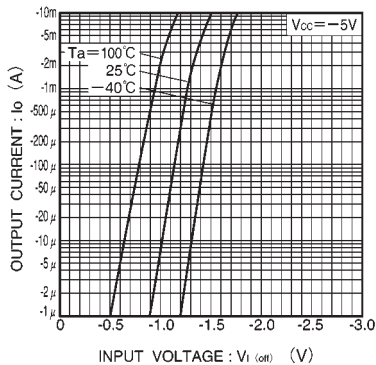


Fig.2 Output current vs. input voltage (OFF characteristics)

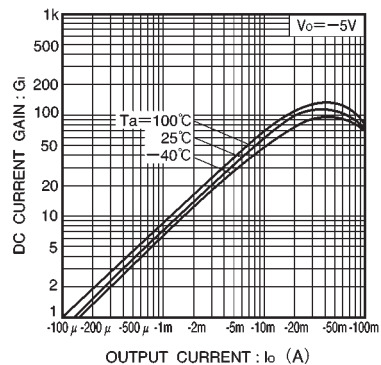


Fig.3 DC current gain vs. output current

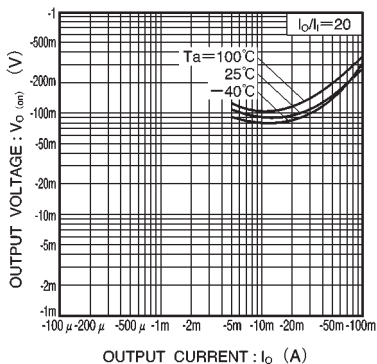


Fig.4 Output voltage vs. output current