DTA143EUB **Transistors**

-100mA / -50V Digital transistors (with built-in resistors)

DTA143EUB

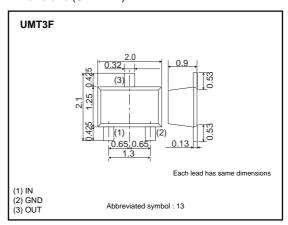
Applications

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 negative 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.

●Dimensions (Unit: mm)



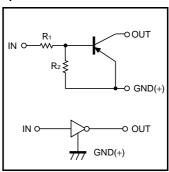
Structure

PNP silicon epitaxial planar transistor type (Resistor built-in)

Packaging specifications

	Package	UMT3F
	Packaging type	Taping
	Code	TL
Part No.	Basic ordering unit (pieces)	3000
DTA143EUB		0

●Equivalent circuit



 $R_1=R_2=4.7k\Omega$

● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	-50	V
Input voltage	Vin	-30 to +10	V
Collector current	IC(max.)*1	-100	mA
Output current	lo	-100	mA
Power dissipation	Pp *2	200	mW
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	-55 to +150	°C

^{*1} Characteristics of built-in transistor *2 Each terminal mounted on a recommended land

Transistors DTA143EUB

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input voltage	VI(off)	-	-	-0.5	V	Vcc=-5V, Io=-100μA
	VI(on)	-3.0	-	-		Vo=-0.3V, Io=-5mA
Output voltage	VO(on)	-	-100	-300	mV	Io=−10mA, I⊨−0.5mA
Input current	lı .	-	-	-1.8	mA	V=-5V
Output current	IO(off)	-	-	-500	nA	Vcc=-50V, Vi=0V
DC current gain	Gı	30	-	-	-	Vo=-5V, Io=-10mA
Transition frequency	f⊤ *	-	250	-	MHz	Vce=-10V, Ie=5mA, f=100MHz
Input resistance	R ₁	3.29	4.7	6.11	kΩ	-
Resistance ratio	R2/R1	0.8	1.0	1.2	_	_

^{*} Characteristics of built-in transistor

•Electrical characteristic curves

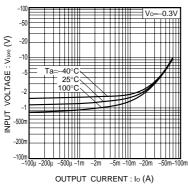


Fig.1 Input voltage vs. output current (ON characteristics)

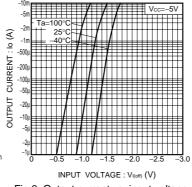


Fig.2 Output current vs. input voltage (OFF characteristics)

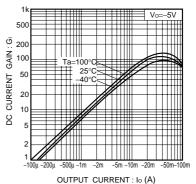


Fig.3 DC current gain vs. output current

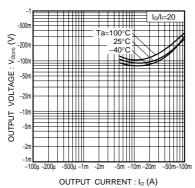


Fig.4 Output voltage vs. output current

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