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

DTA123JM / DTA123JE / DTA123JUA / DTA123JKA / DTA123JSA

Applications

Inverter, Interface, Driver

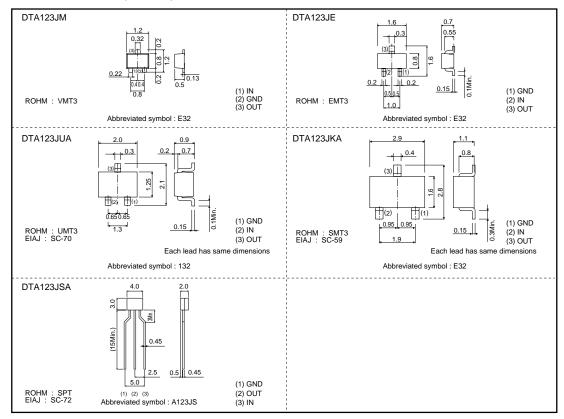
Features

- 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.

Structure

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

●External dimensions (Unit : mm)



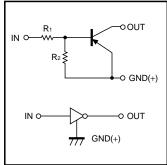
Rev.A

1/3

Packaging specifications

Package		VMT3 EMT3		UMT3	SMT3	SPT
	Packaging type	Taping	Taping	Taping	Taping	Taping
	Code	T2L	TL	T106	T146	TP
Part No.	Basic ordering unit (pieces)	8000	3000	3000	3000	5000
DTA123JM		0	-	-	-	-
DTA123JE		-	0	-	-	-
DTA123JUA		-	-	0	-	-
DTA123JKA		-	-	-	0	-
DTA123JSA		_	-	-	-	0

●Equivalent circuit



R₁=2.2kΩ, R₂=47kΩ

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits				
raiailletei		DTA123JM DTA123JE	DTA123JUA	DTA123JKA	DTA123JSA	Unit
Supply voltage	Vcc	-50				V
Input voltage	VIN	-12 to +5				V
Output ourrent	lo	-100				mA
Output current	IC(Max.)	-100				
Power dissipation PD		150 200 30		300	mW	
Junction temperature	Tj	150				°C
Storage temperature	Tstg	−55 to +150				°C

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
land delication and the same	VI(off)	-	-	-0.5	.,	Vcc=-5V, Io=-100μA
Input voltage	VI(on)	-1.1	-	-	V	Vo=-0.3V, Io=-5mA
Output voltage	VO(on)	-	-0.1	-0.3	V	Io/I:=-5mA/-0.25mA
Input current	lı	-	-	-3.6	mA	VI=-5V
Output current	IO(off)	-	-	-0.5	μΑ	Vcc=-50V, Vi=0V
DC current gain	Gı	80	-	-	-	Vo=-5V, Io=-10mA
Input resistance	R ₁	1.54	2.2	2.86	kΩ	-
Resistance ratio	R ₂ /R ₁	17	21	26	-	-
Transition frequency	f⊤ *	-	250	-	MHz	Vce=-10V, Ie=5mA, f=100MHz

^{*} Characteristics of built-in transistor

•Electrical characteristic curves

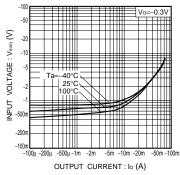


Fig.1 Input voltage vs. output current (ON characteristics)

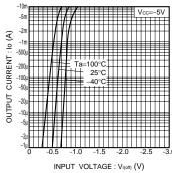


Fig.2 Output current vs. input voltage (OFF characteristics)

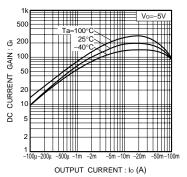


Fig.3 DC current gain vs. output current

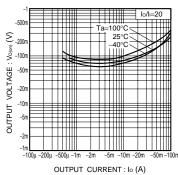


Fig.4 Output voltage vs. output current

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