

-100mA / -50V Digital transistors

(with built-in resistors)

DTA123JM / DTA123JE / DTA123JUA / DTA123JKA

Applications

Inverter, Interface, Driver

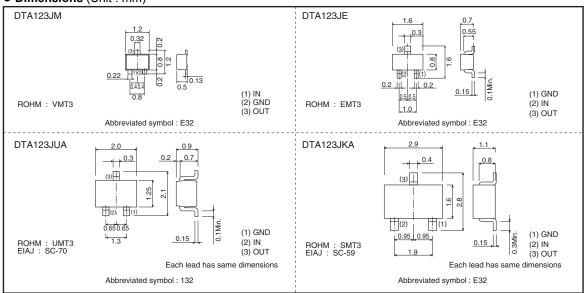
Features

- 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)

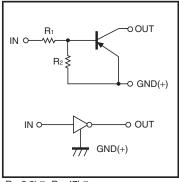
• Dimensions (Unit : mm)



Packaging specifications

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

• Inner circuit



R₁=2.2kΩ, R₂=47kΩ

• Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits				Unit
Farameter		DTA123JM DTA	\123JE	DTA123JUA	DTA123JKA	Unit
Supply voltage	Vcc	-50			٧	
Input voltage	VIN	-12 to +5			٧	
Output ourrent	lo	-100			mA	
Output current	IC(Max.)	-100				
Power dissipation	Po	150 200		00	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
lanut voltono	VI(off)	-	-	-0.5	V	Vcc=-5V, Io=-100μA
Input voltage	VI(on)	-1.1	-	_		Vo=-0.3V, Io=-5mA
Output voltage	V _{O(on)}	-	-0.1	-0.3	V	Io/I:=-5mA/-0.25mA
Input current	lı	-	-	-3.6	mA	V=-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	R2/R1	17	21	26	-	_
Transition frequency	f⊤ *	-	250	_	MHz	Vce=-10V, Ie=5mA, f=100MHz

^{*} Characteristics of built-in transistor

• Electrical characteristic curves

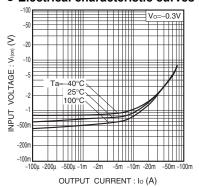


Fig.1 Input voltage vs. output current (ON characteristics)

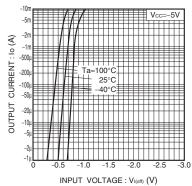


Fig.2 Output current vs. input voltage (OFF characteristics)

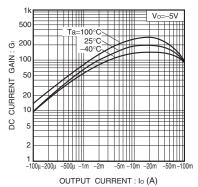


Fig.3 DC current gain vs. output current

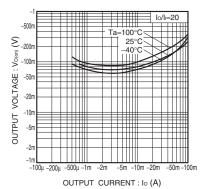


Fig.4 Output voltage vs. output current

Notes

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