

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

DTA123EM / DTA123EE / DTA123EUA / DTA123EKA

Applications

Inverter, Interface, Driver

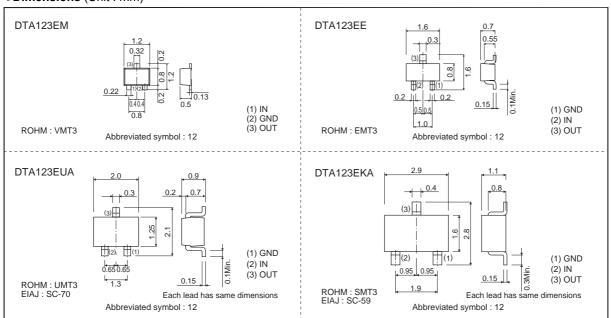
Features

- 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)

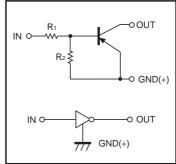
●Dimensions (Unit: mm)



Packaging specifications

	<u> </u>				
	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
DTA123EM		0			_
DTA123EE			0		_
DTA123EUA		-	-	0	_
DTA123EKA	\	_	_	_	0

●Equivalent circuit



 $R_1=R_2=2.2k\Omega$

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol		Unit			
- raiailletei		DTA123EM	DTA123EE	DTA123EUA	DTA123EKA	Uill
Supply voltage	Vcc	-50			V	
Input voltage	Vin	-12 to +10			V	
Output ourrant	lo	-100				mA
Output current	IC(Max.)	-100				
Power dissipation	Po	15	50	2	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
lancit voltage	VI(off)	-	_	-0.5	V	Vcc=-5V, Io=-100μA
Input voltage	V _{I(on)}	-3	_	-		Vo=-0.3V, Io=-20mA
Output voltage	V _{O(on)}	-	-0.1	-0.3	V	Io/I=-10mA/-0.5mA
Input current	lı .	-	-	-3.8	mA	V=-5V
Output current	IO(off)	-	-	-0.5	μΑ	Vcc=-50V, V⊫0V
DC current gain	Gı	20	-	-	-	Vo=-5V, Io=-20mA
Input resistance	R ₁	1.54	2.2	2.86	kΩ	_
Resistance ratio	R ₂ /R ₁	0.8	1	1.2	-	_
Transition frequency	f⊤ *	-	250	-	MHz	Vce=-10V, Ie=5mA, f=100MHz

^{*} Characteristics of built-in transistor

●Electrical characteristic curves

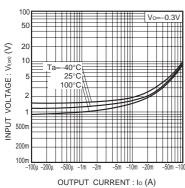


Fig.1 Input voltage vs. output current (ON characteristics)

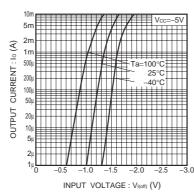


Fig.2 Output current vs. input voltage (OFF characteristics)

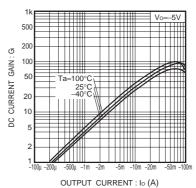


Fig.3 DC current gain vs. output current

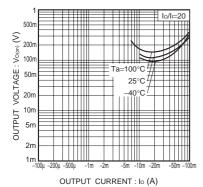


Fig.4 Output voltage vs. output current

Notes

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