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

DTA114EM / DTA114EE / DTA114EUA / DTA114EKA / DTA114ESA

Applications

Inverter, Interface, Driver

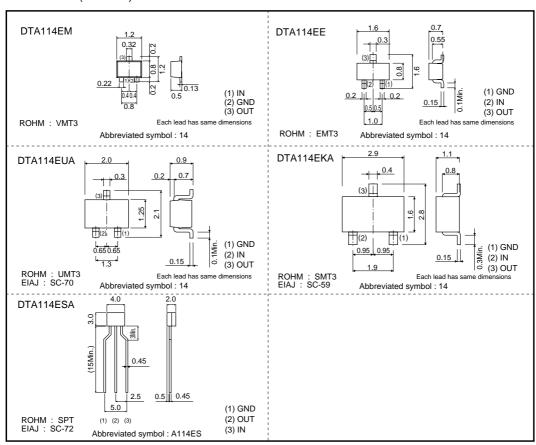
Features

- 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)

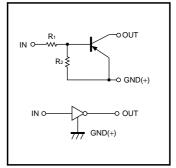
●Dimensions (Unit: mm)



Packaging specifications

	Package	VMT3	EMT3	UMT3	SMT3	SPT
	Packaging type	Taping	Taping	Taping	Taping	Taping
	Code	T2L	TL	T106	T146	TP
Туре	Basic ordering unit (pieces)	8000	3000	3000	3000	5000
DTA114EM		0	-	-	-	-
DTA114EE		-	0	-	-	-
DTA114EU	A	-	-	0	-	-
DTA114EKA		-	-	-	0	_
DTA114ESA	4	_	-	_	_	0

●Equivalent circuit



R₁=R₂=10kΩ

● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits					
raiailletei		DTA114EM	DTA114EE	DTA114EUA	DTA114EKA	DTA114ESA	Unit
Supply voltage	Vcc	-50					V
Input voltage	VIN	-40 to +10					V
Outrout oursent	lo	-50					
Output current	IC(Max.)	-100					
Power dissipation	Pd	150		200		300	mW
Junction temperature	Tj	150					ů
Storage temperature	Tstg	-55 to +150					

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Innut voltage	VI(off)	-	_	-0.5	.,	Vcc=-5V, Io=-100μA	
Input voltage	VI(on)	-3	_	_	V	Vo=-0.3V, Io=-10mA	
Output voltage	Vo(on)	-	_	-0.3	V	Io/I=-10mA/-0.5mA	
Input current	lı	_	_	-0.88	mA	V=-5V	
Output current	IO(off)	_	_	-0.5	μΑ	Vcc=-50V, Vi=0V	
DC current gain	Gı	30	_	_	-	Vo=-5V, Io=-5mA	
Input resistance	R ₁	7	10	13	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

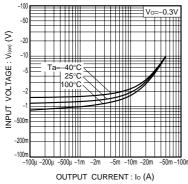


Fig.1 Input voltage vs. output current (ON characteristics)

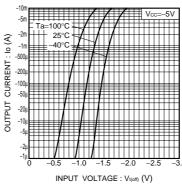


Fig.2 Output current vs. input voltage (OFF characteristics)

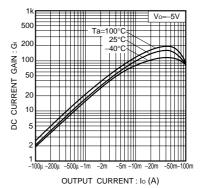


Fig.3 DC current gain vs. output current

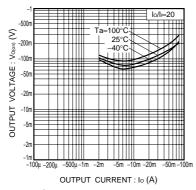


Fig.4 Output voltage vs. output current



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