

-100mA / -50V Digital transistors

(with built-in resistors)

DTA114WE / DTA114WUA / DTA114WKA

Applications

Inverter, Interface, Driver

Features

- 1)Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2)The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
- 3)Only the on / off conditions need to be set for operation, making the device design easy.
- 4) Higher mounting densities can be achieved.

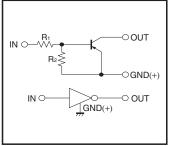
Structure

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

Packaging specifications

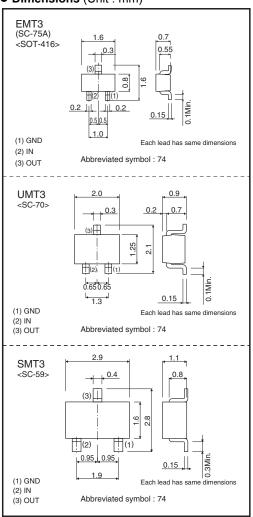
	Package	EMT3	UMT3	SMT3
	Packaging type	Taping	Taping	Taping
	Code	TL	T106	T146
Part No.	Basic ordering unit (pieces)	3000	3000	3000
DTA114WE		0	_	_
DTA114WUA		_	0	_
DTA114WKA		_	_	0

Inner circuit



 $R_1=10k\Omega$, $R_2=4.7k\Omega$

• Dimensions (Unit : mm)



• Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Supply voltage		Vcc	-50	V	
Input voltage		Vı	-30 to +10) V	
Output current		lo	-100	mA	
		IC(Max.)	-100		
Power dissipation	DTA114WE	- Pp	150	mW	
	DTA114WUA / DTA114WKA] PD	200	IIIVV	
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 voltage	VI(off)	_	_	-0.8	٧	Vcc= -5V , Io= -100μA
Input voltage	VI(on)	-3	_	_		Vo= -0.3V , Io= -2mA
Output voltage	V _{O(on)}	_	-0.1	-0.3	V	lo= −10mA , l= −0.5mA
Input current	lı	_	_	-0.88	mA	V _I = −5V
Output current	IO(off)	_	_	-0.5	μΑ	Vcc=-50V , Vi=0V
DC current gain	Gı	24	_	_	_	lo=-10mA , Vo=-5V
Input resistance	R ₁	7	10	13	kΩ	-
Resistance ratio	R2/R1	0.37	0.47	0.57	_	-
Transition frequency	f⊤ *	_	250	-	MHz	Vc=-10V , I=5mA , f=100MHz

^{*} Characteristics of built-in transistor

Electrical characteristic curves

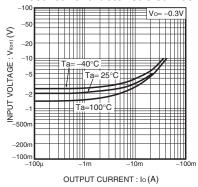


Fig.1 Input voltage vs. Output current (ON characteristics)

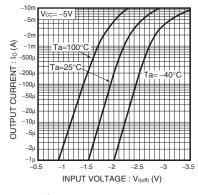


Fig.2 Output current vs. Input voltage (OFF characteristics)

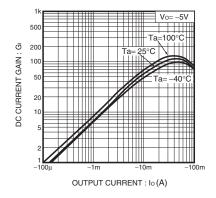


Fig.3 DC current gain vs. Output current

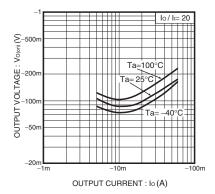


Fig.4 Output voltage vs. Output current

Notes

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