

-100mA / -50V Digital transistors

(with built-in resistors)

DTA115EM / DTA115EE / DTA115EUA / DTA115EKA

Applications

Inverter, Interface, Driver

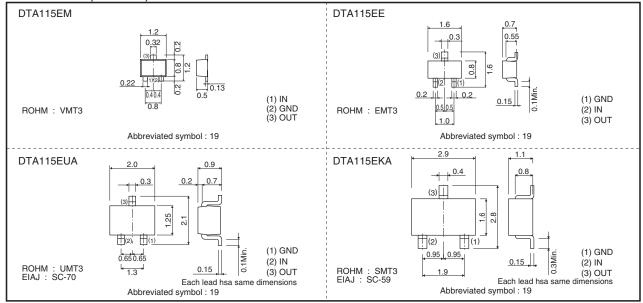
Features

- 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, 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)

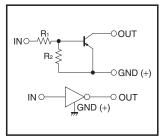
• Dimensions (Unit: mm)



Packaging specifications

	-				
	Package	VMT3	EMT3	UMT3	SMT3
Packging type		Taping	Taping	Taping	Taping
	Code		TL T106		T146
Part No.	Basic ordering unit (pieces)	8000	3000	3000	3000
DTA115EM		0	_	-	-
DTA115EE		_	0	_	_
DTA115EUA		_	-	0	_
DTA115EKA		_	_	_	0

• Inner circuit



R₁=R₂=100kΩ

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● Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit	
Supply voltage		Vcc	-50	V	
Input voltage		Vı	-40 to +10	V	
Output current		lo	-20	mA	
		IC(Max.)	-100	IIIA	
Power	DTA115EM / DTA115EE	Pp	150	mW	
dissipation	DTA115EUA / DTA115EKA	Pυ	200		
Junction temperature		Tj	150	°C	
Storage temperature		Tstg	-55 to +150	°C	

• Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input voltage	VI(off)	_	_	-0.5	V	Vcc= -5V, Io= -100μA
Input voltage	VI(on)	-3	_	_] V	Vo= -0.3V, Io= -1mA
Output voltage	V _{O(on)}	_	-0.1	-0.3	V	lo= −5mA, l≔ −0.25mA
Input current	lı .	_	-	-0.15	mA	V _I = −5V
Output current	IO(off)	_	-	-0.5	μА	Vcc= -50V, Vi=0V
DC current gain	Gı	82	-	_	_	Io= -5mA, Vo= -5V
Input resistance	R ₁	70	100	130	kΩ	_
Resistance ratio	R2/R1	0.8	1	1.2	_	_
Transition frequency	f⊤ *	_	250	_	MHz	Vce= -10V, Ie=5mA, f=100MHz

^{*} Characteristics of built-in transistor

• Electrical characteristic curves

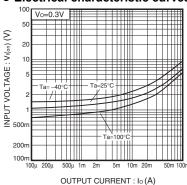


Fig.1 Input voltage vs. Output current (ON characteristics)

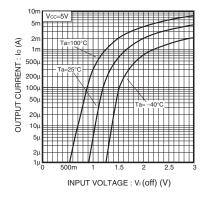


Fig.2 Output current vs. Input voltage (OFF characteristics)

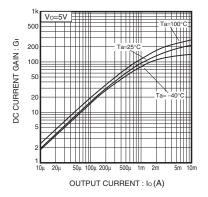


Fig.3 DC current gain vs. Output current

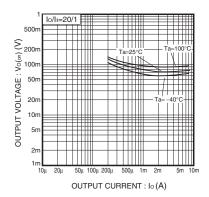


Fig.4 Output voltage vs. Output current

Notes

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