

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

DTA144EM / DTA144EE / DTA144EUA / DTA144EKA

Applications

Inverter, Interface, Driver

Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the 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.
- Only the on / off conditions need to be set for operation, making the device design easy.

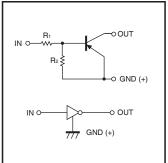
Structure

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

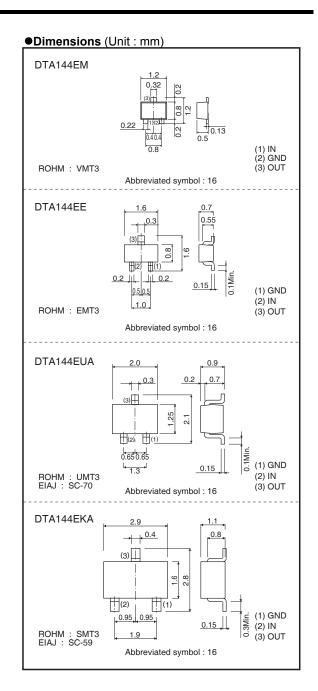
Packaging specifications

- r dokaging opcomodations							
	Package	VMT3	EMT3	UMT3	SMT3		
	Packaging type	Taping	Taping	Taping	Taping		
	Code	T2L	TL	T106	T146		
Туре	Basic ordering unit (pieces)	8000	3000	3000	3000		
DTA144EM		0	-	-	_		
DTA144EE			0	-	_		
DTA144EUA			-	0	_		
DTA144EKA		_	_	_	0		

●Equivalent circuit



R₁=R₂=47kΩ



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits					
raiaillelei	Symbol	DTA144EM	DTA144EE	DTA144EUA	DTA144EKA	Unit	
Supply voltage	Vcc	-50				V	
Input voltage	VIN	-40 to +10					
Output ourrent	lo	-30				mA	
Output current	Ic(Max.)	-100					
Power dissipation	Pd	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
Input voltage	V _{I(off)}	_	-	-0.5	V	Vcc=-5V, Io=-100μA
Input voltage	V _{I(on)}	-3.0	_	_	V	Vo=-0.3V, Io=-2mA
Output voltage	Vo(on)	_	-0.1	-0.3	V	lo / l=-10mA / -0.5mA
Input current	lı	_	-	-0.18	mA	V=-5V
Output current	IO(off)	-	-	-0.5	μΑ	Vcc=-50V, V⊫0V
DC current gain	Gı	68	-	_	_	Vo=-5V, Io=-5mA
Input resistance	R ₁	32.9	47	61.1	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

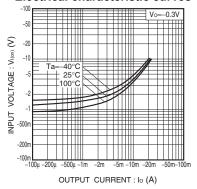
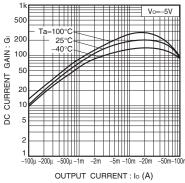


Fig.1 Input voltage vs. output current (ON characteristics)



OUTPUT CURRENT: lo (A)
Fig.3 DC current gain vs. output current

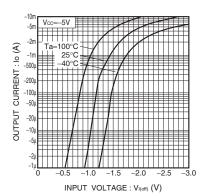


Fig.2 Output current vs. input voltage (OFF characteristics)

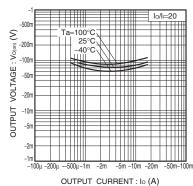


Fig.4 Output voltage vs. output current

Notes

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