

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

## DTA114TUB

### ●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 negative 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 silicon epitaxial planar transistor type  
(Resistor built-in)

### ●Packaging specifications

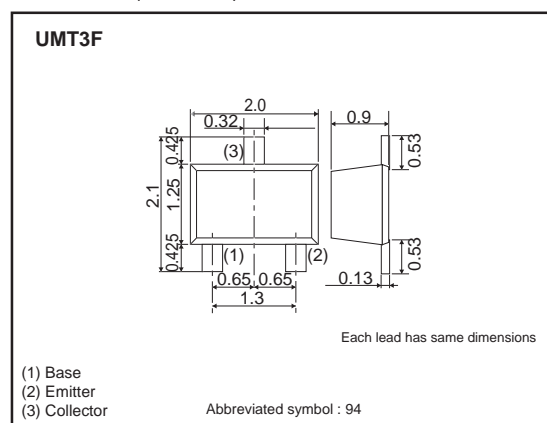
	Package	UMT3F
	Packaging type	Taping
	Code	TL
Part No.	Basic ordering unit (pieces)	3000
DTA114TUB		○

### ●Absolute maximum ratings (Ta=25°C)

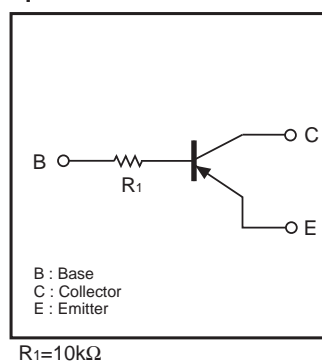
Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	-50	V
Collector-emitter voltage	V <sub>CE0</sub>	-50	V
Emitter-base voltage	V <sub>EB0</sub>	-5	V
Collector current	I <sub>c</sub>	-100	mA
Power dissipation*	P <sub>D</sub>	200	mW
Junction temperature	T <sub>j</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-55 to +150	°C

\* Each terminal mounted on a recommended land

### ●Dimensions (Unit : mm)



### ●Equivalent circuit



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	-50	-	-	V	I <sub>C</sub> =-1mA
Collector-base breakdown voltage	BV <sub>CBO</sub>	-50	-	-	V	I <sub>C</sub> =-50μA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	-5	-	-	V	I <sub>E</sub> =-50μA
Collector cutoff current	I <sub>CBO</sub>	-	-	-500	nA	V <sub>CB</sub> =-50V
Emitter cutoff current	I <sub>EBO</sub>	-	-	-500	nA	V <sub>EB</sub> =-4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-0.3	V	I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA
DC current gain	h <sub>FE</sub>	100	250	600	-	V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA
Transition frequency	f <sub>T</sub> *	-	250	-	MHz	V <sub>CE</sub> =-10V, I <sub>E</sub> =5mA, f=100MHz
Input resistance	R <sub>1</sub>	7	10	13	kΩ	-

\* Characteristics of built-in transistor

●Electrical characteristic curves

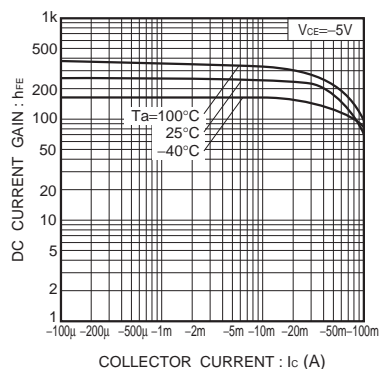


Fig.1 DC current gain vs. collector current

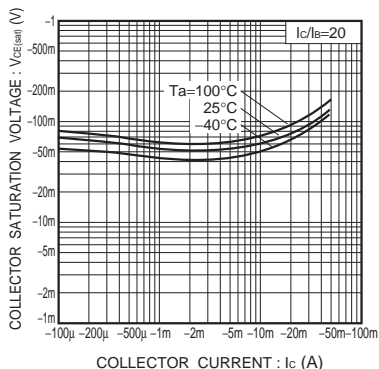


Fig.2 Collector-emitter saturation voltage vs. collector current

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