

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

DTA114GUA / DTA114GKA

● **Applications**

Inverter, Interface, Driver

● **Features**

- 1) The built-in bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
- 2) Only the on / off conditions need to be set for operation, making the device design easy.
- 3) Higher mounting densities can be achieved.

● **Structure**

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

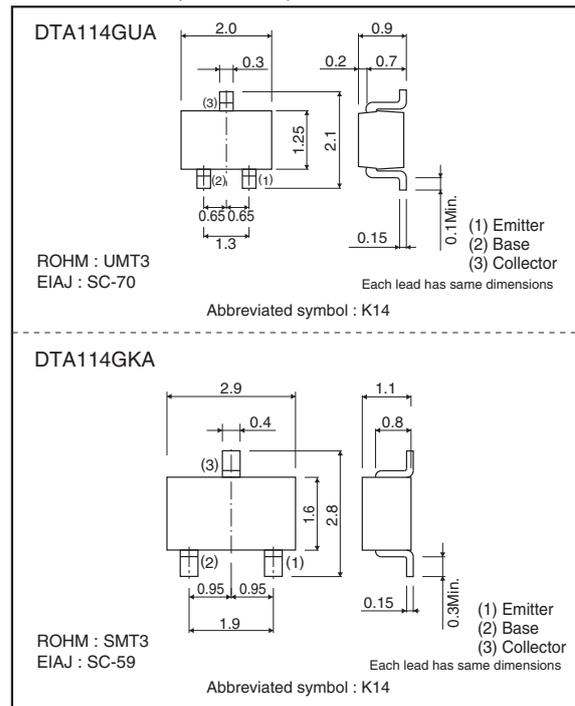
● **Packaging specifications**

Part No.	Package	UMT3	SMT3
	Basic ordering unit (pieces)		3000
	Package	UMT3	SMT3
	Packaging type	Taping	Taping
	Code	T106	T146
DTA114GUA		○	—
DTA114GKA		—	○

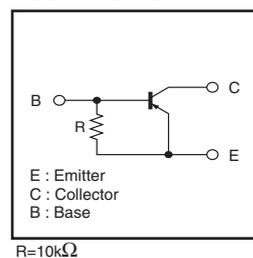
● **Absolute maximum ratings (Ta=25°C)**

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

● **Dimensions (Unit : mm)**



● **Inner circuit**



● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	-50	-	-	V	I <sub>C</sub> = -50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-50	-	-	V	I <sub>C</sub> = -1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-5	-	-	V	I <sub>E</sub> = -720μA
Collector cutoff current	I <sub>CB0</sub>	-	-	-0.5	μA	V <sub>CB</sub> = -50V
Emitter cutoff current	I <sub>EB0</sub>	-300	-	-580	μA	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> = -0.5mA
DC current transfer ratio	h <sub>FE</sub>	30	-	-	-	I <sub>C</sub> = -5mA, V <sub>CE</sub> = -5V
Emitter-base resistance	R <sub>i</sub>	7	10	13	kΩ	-
Transition frequency	f <sub>T</sub> *	-	250	-	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> =50mA, f=100MHz

\* Characteristics of built-in transistor

● Electrical characteristic curves

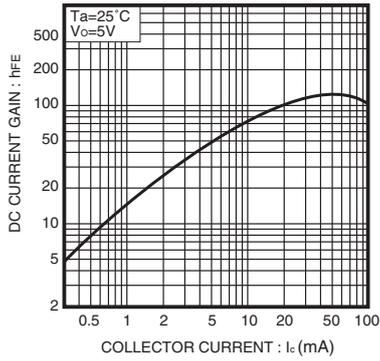


Fig.1 DC Current gain vs. Collector Current

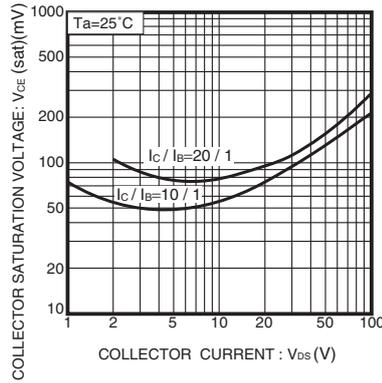


Fig.2 Collector-emitter saturation voltage vs. Collector Current

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