

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

DTC144GE / DTC144GUA / DTC144GKA

● **Applications**

Inverter, Interface, Driver

● **Features**

- 1) The built-in bias resistors consist of thin-film resistors with complete isolation to allow negative 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.

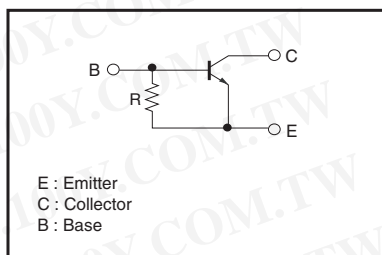
● **Structure**

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

● **Packaging specifications**

Part No.	Package	EMT3	UMT3	SMT3
	Packaging type	Taping	Taping	Taping
	Code	TL	T106	T146
	Basic ordering unit (pieces)	3000	3000	3000
DTC144GE		○	—	—
DTC144GUA		—	○	—
DTC144GKA		—	—	○

● **Inner circuit**

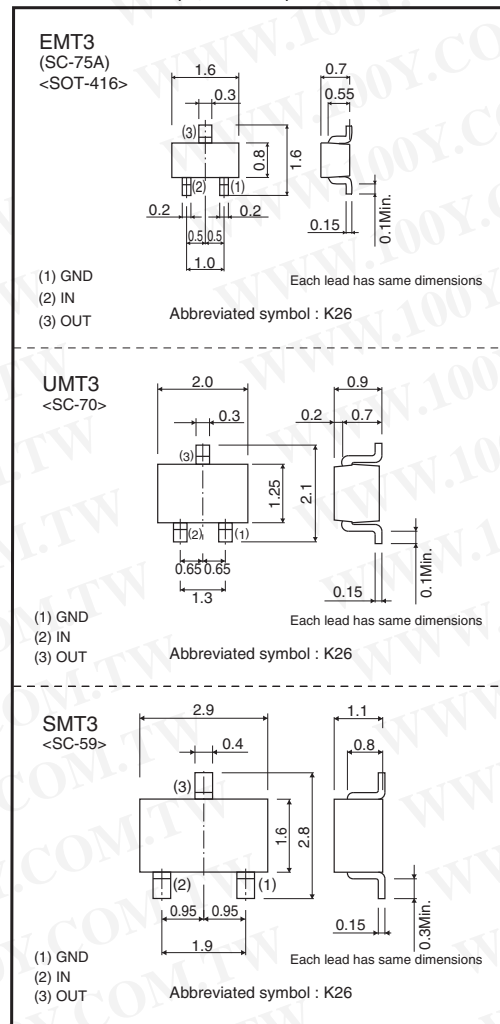


R=47kΩ

● **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
Collector power dissipation	DTC144GE	150	mW
	DTC144GUA / DTC144GKA	200	
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

● **Dimensions (Unit : mm)**



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## ● 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>CEO</sub>	50	–	–	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	–	–	V	I <sub>E</sub> =160μA
Collector cutoff current	I <sub>CBO</sub>	–	–	0.5	μA	V <sub>CB</sub> =50V
Emitter cutoff current	I <sub>EBO</sub>	65	–	130	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>	68	–	–	–	I <sub>C</sub> =5mA, V <sub>CE</sub> =5V
Emitter-base resistance	R	32.9	47	61.1	kΩ	–
Transition frequency	f <sub>T</sub> *	–	250	–	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> = –5mA, f=100MHz

\* Characteristics of built-in transistor

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