

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

DTC115TM / DTC115TE / DTC115TUA / DTC115TKA

● Applications

Inverter, Interface, Driver

● Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative 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.

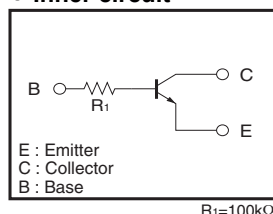
● Structure

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

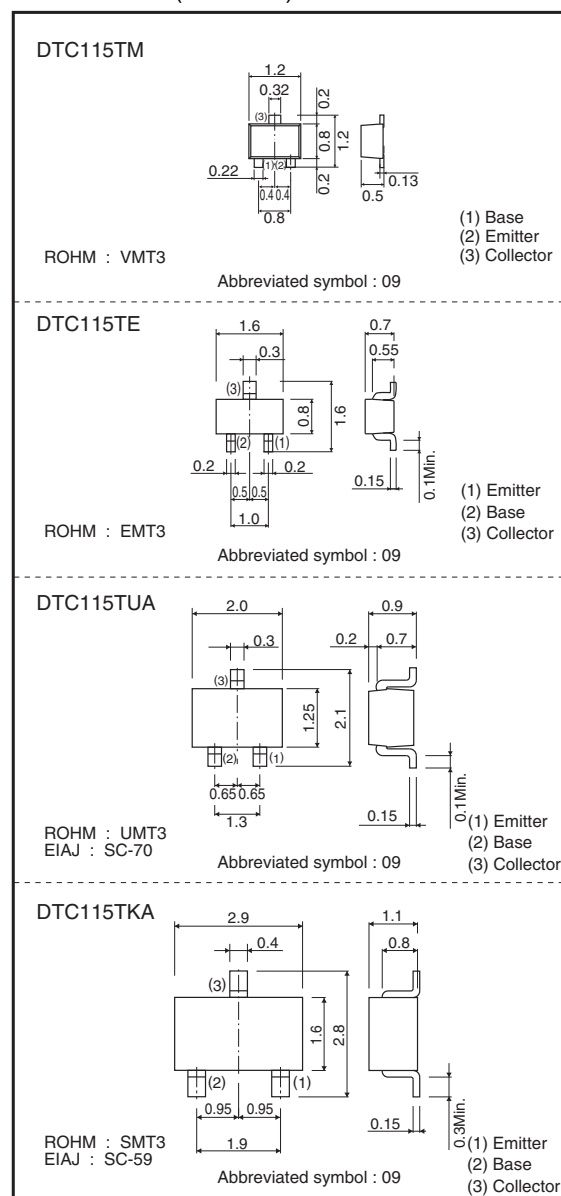
● Packaging specifications

Package	VMT3	EMT3	UMT3	SMT3
Packaging type	Taping	Taping	Taping	Taping
Code	T2L	TL	T106	T146
Basic ordering unit (pieces)	8000	3000	3000	3000
Part No.				
DTC115TM	○	—	—	—
DTC115TE	—	○	—	—
DTC115TUA	—	—	○	—
DTC115TKA	—	—	—	○

● Inner circuit



● Dimensions (Unit : mm)



● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CE0}	50	V
Emitter-base voltage	V _{EB0}	5	V
Collector current	I _c	100	mA
Collector power dissipation	DTC115TM / DTC115TE	150	mW
	DTC115TUA / DTC115TKA	200	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	50	—	—	V	I _c =50μA
Collector-emitter breakdown voltage	BV _{CE0}	50	—	—	V	I _c =1mA
Emitter-base breakdown voltage	BV _{EB0}	5	—	—	V	I _E =50μA
Collector cutoff current	I _{CB0}	—	—	0.5	μA	V _{CB} =50V
Emitter cutoff current	I _{EB0}	—	—	0.5	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	0.3	V	I _c /I _B =1mA/0.1mA
DC current transfer ratio	h _{FE}	100	250	600	—	I _c =1mA, V _{CE} =5V
Input resistance	R _i	70	100	130	kΩ	—
Transition frequency	f _T *	—	250	—	MHz	V _{CE} =10V, I _E =-5mA, f=100MHz

* Characteristics of built-in transistor.

Notes

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