

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

DTA115TM / DTA115TE / DTA115TUA / DTA115TKA / DTA115TSA

●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 positive 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.

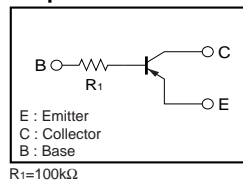
●Structure

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

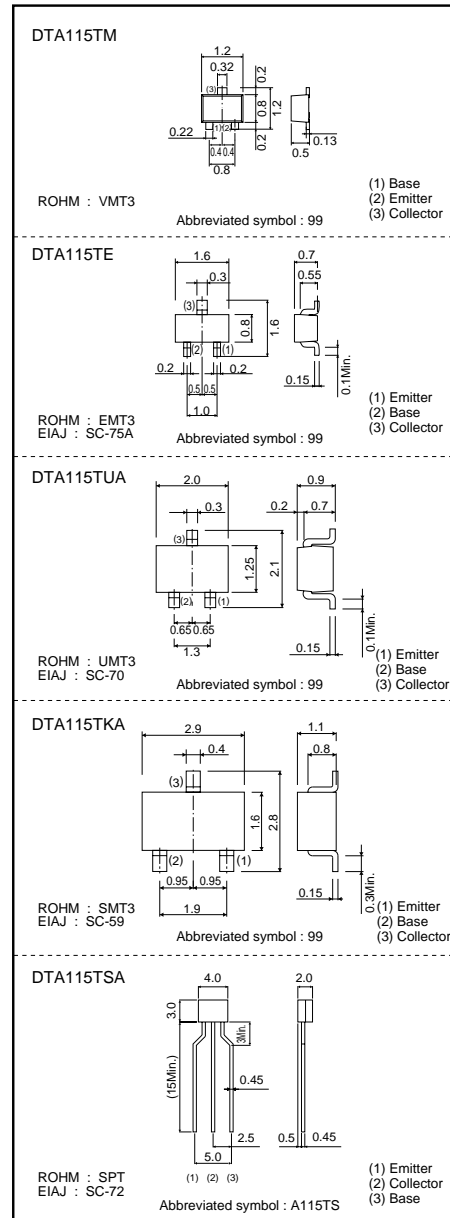
●Packaging specifications

Part No.	Package	VMT3	EMT3	UMT3	SMT3	SPT
	Packaging type	Taping	Taping	Taping	Taping	Taping
	Code	T2L	TL	T106	T146	TP
	Basic ordering unit (pieces)	8000	3000	3000	3000	5000
DTA115TM		○	-	-	-	-
DTA115TE		-	○	-	-	-
DTA115TUA		-	-	○	-	-
DTA115TKA		-	-	-	○	-
DTA115TSA		-	-	-	-	○

●Equivalent circuit



●External dimensions (Unit : mm)



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Transistors

● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	-50	V
Collector-emitter voltage	V _{CEO}	-50	V
Emitter-base voltage	V _{EBO}	-5	V
Collector current	I _c	-100	mA
Collector power dissipation	DTA115TM / DTA115TE	150	mW
	DTA115TUA / DTA115TKA	200	
	DTA115TSA	300	
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 _{CEO}	-50	-	-	V	I _c = -1mA
Emitter-base breakdown voltage	BV _{EBO}	-5	-	-	V	I _E = -50μA
Collector cutoff current	I _{CB0}	-	-	-0.5	μA	V _{CB} = -50V
Emitter cutoff current	I _{EBO}	-	-	-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 _r *	-	250	-	MHz	V _{CE} = -10V, I _E =5mA, f=100MHz

*Characteristics of built-in transistor

● Electrical characteristics curves

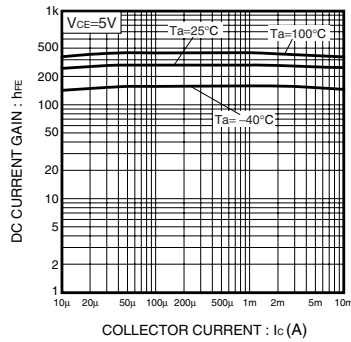


Fig.1 DC current gain vs. Collector current

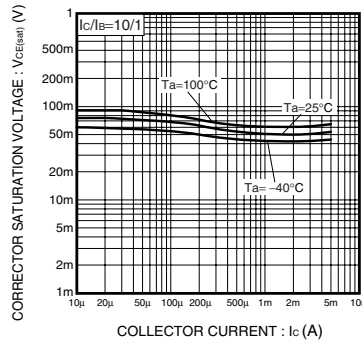


Fig.2 Collector-Emmitter saturation voltage vs. Collector current

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