

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

DTA115TM / DTA115TE / DTA115TUA / DTA115TKA

● **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.

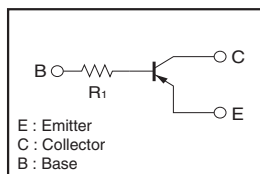
● **Structure**

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

● **Packaging specifications**

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

● **Inner circuit**



R1=100kΩ

● **Dimensions (Unit : mm)**

DTA115TM

ROHM : VMT3
EIAJ : SC-75A
Abbreviated symbol : 99

(1) Base
(2) Emitter
(3) Collector

DTA115TE

ROHM : EMT3
EIAJ : SC-75A
Abbreviated symbol : 99

(1) Emitter
(2) Base
(3) Collector

DTA115TUA

ROHM : UMT3
EIAJ : SC-70
Abbreviated symbol : 99

(1) Emitter
(2) Base
(3) Collector

DTA115TKA

ROHM : SMT3
EIAJ : SC-59
Abbreviated symbol : 99

(1) Emitter
(2) Base
(3) Collector

● 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	DTA115TM / DTA115TE	P _c	150	mW
	DTA115TUA / DTA115TKA		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 ₁	70	100	130	kΩ	-
Transition frequency	f _T *	-	250	-	MHz	V _{CE} = -10V , I _E =5mA , f=100MHz

*Characteristics of built-in transistor

● Electrical characteristic curves

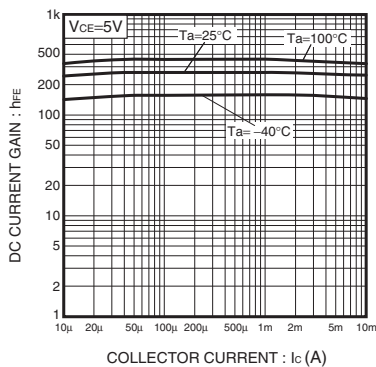


Fig.1 DC current gain vs. Collector current

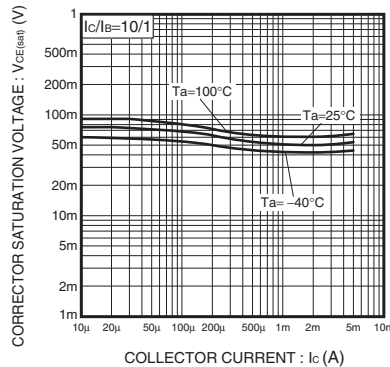


Fig.2 Collector-Emitter saturation voltage vs. Collector current

Notes

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