

# -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.

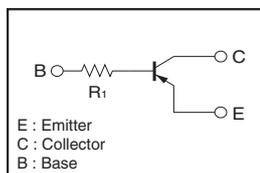
● **Structure**

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 <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	DTA115TM / DTA115TE	P <sub>c</sub>	150	mW
	DTA115TUA / DTA115TKA		200	
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

● 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> = -50μA
Collector cutoff current	I <sub>CB0</sub>	-	-	-0.5	μA	V <sub>CB</sub> = -50V
Emitter cutoff current	I <sub>EB0</sub>	-	-	-0.5	μA	V <sub>EB</sub> = -4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-0.3	V	I <sub>c</sub> /I <sub>B</sub> = -1mA/-0.1mA
DC current transfer ratio	h <sub>FE</sub>	100	250	600	-	I <sub>c</sub> = -1mA , V <sub>CE</sub> = -5V
Input resistance	R <sub>1</sub>	70	100	130	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

● Electrical characteristic curves

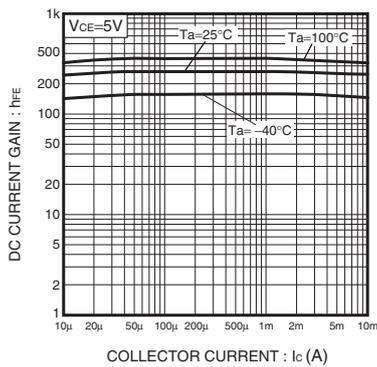


Fig.1 DC current gain vs. Collector current

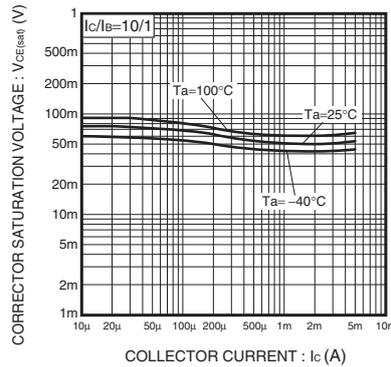


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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