

# 100mA / 50V Digital transistors

## (with built-in resistors)

DTC143TM / DTC143TE / DTC143TUA / DTC143TKA

#### • Applications

Inverter, Interface, Driver

#### • Features

1)Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).

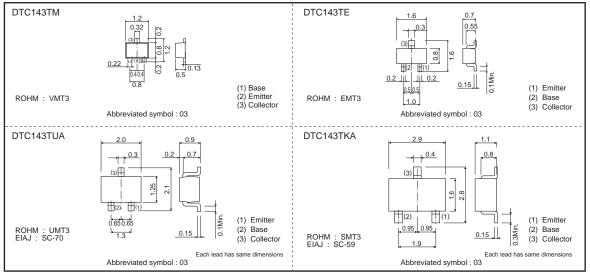
2)The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.

3)Only the on/off conditions need to be set for operation, making the device design easy.

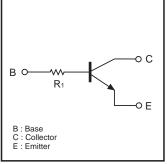
#### • Structure

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

#### • Dimensions (Unit : mm)



#### Inner circuit



R1=4.7kΩ

#### • Packaging specifications

	Package	VMT3	EMT3	UMT3	SMT3
	Packaging type	Taping	Taping	Taping	Taping
	Code	T2L	TL	T106	T146
Part No.	Basic ordering unit (pieces)	8000	3000	3000	3000
DTC143TM		0	-	-	-
DTC143TE		-	0	-	-
DTC143TUA	A	-	-	0	-
DTC143TKA	۱.	-	-	-	0

#### • Absolute maximum ratings (Ta=25°C)

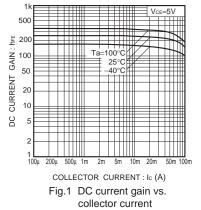
Parameter	Symbol			Unit			
Falameter	Symbol	DTC143TM	DTC143TE	DTC143TUA	DTC143TKA	Unit	
Collector-base voltage	Vсво		V				
Collector-emitter voltage	Vceo		V				
Emitter-base voltage	Vebo		ŧ	5		V	
Collector current	lc		1(	00		mA	
Collector power dissipation	Pc	15	50	2	00	mW	
Junction temperature	Tj		1:	50		°C	
Storage temperature	Tstg		–55 to	o +150		°C	

#### • Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-base breakdown voltage	ВУсво	50	-	-	V	Ic=50μA
Collector-emitter breakdown voltage	BVCEO	50	-	-	V	Ic=1mA
Emitter-base breakdown voltage	ВУево	5	-	-	V	Iε=50μA
Collector cutoff current	Ісво	-	-	0.5	μΑ	Vcb=50V
Emitter cutoff current	Іево	-	-	0.5	μΑ	Veb=4V
Collector-emitter saturation voltage	VCE(sat)	-	-	0.3	V	Ic/IB=5mA/0.25mA
DC current transfer ratio	hfe	100	250	600	-	Ic=1mA, Vce=5V
Input resistance	R1	3.29	4.7	6.11	kΩ	-
Transition frequency	f⊤ *	-	250	-	MHz	Vce=10V, Ie=-5mA, f=100MHz

\* Characteristics of built-in transistor

#### • Electrical characteristic curves



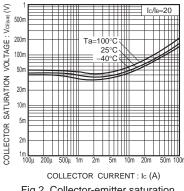


Fig.2 Collector-emitter saturation voltage vs. collector current

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