200mA / 50V Digital transistor (with built-in resistor) DTC123TKA

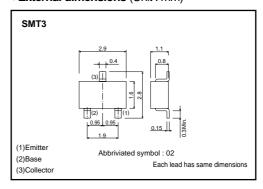
Applications

Inverter, Interface, Driver

Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 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.

●External dimensions (Unit:mm)



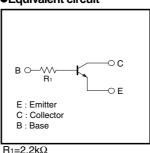
●Structure

NPN epitaxial planar silicon transistor

Packaging specifications

	Package	SMT3
	Packaging type	Taping
	Code	T146
Part No.	Basic ordering unit (pieces)	3000
DTC123TKA		0

●Equivalent circuit



● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	Vсво	50	V
Collector-emitter voltage	VCEO	50	V
Emitter-base voltage	VEBO	5	V
Collector current	Ic	100	mA
Collector Power dissipation	Pc	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +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	Ієво	-	_	0.5	μΑ	V _{EB} =4V
Collector-emitter saturation voltage	VCE(sat)	_	_	0.3	V	Ic/Iв=5mA/0.25mA
DC current transfer ratio	hfe	100	250	600	_	Ic=1mA , VcE=5V
Input resistance	R ₁	1.54	2.2	2.86	kΩ	-
Transition frequency	f⊤ *	_	250	_	MHz	Vcb=10V , IE= -5mA , f=100MHz

^{*} Characteristics of built-in transistor.

•Electrical characteristics curves

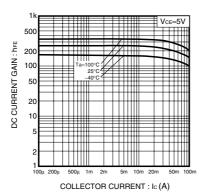


Fig.1 DC Current gain vs. Collector Current

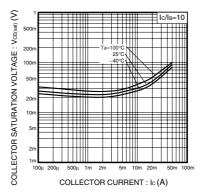


Fig.2 Collector-emitter saturation voltage vs. Collector Current

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