

500mA / 40V Digital transistors (with built-in resistors)

DTD123TK

Applications

Inverter, Interface, Driver

Features

- 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)

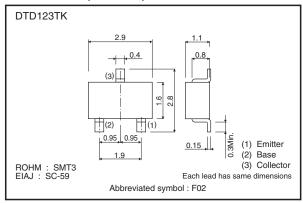
Packaging specifications

	Package	SMT3
	Packaging type	Taping
	Code	T146
Part No.	Basic ordering unit (pieces)	3000
DTD123TK		0

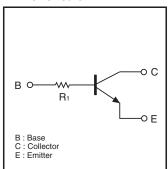
Absolute maximum ratings (Ta=25°C)

Parameter	Cumple of	Limits	Unit
Parameter	Symbol	DTD123TK	
Collector-base voltage	Vсво	50	V
Collector-emitter voltage	VCEO	40	V
Emitter-base voltage	VEBO	5	V
Collector current	Ic	500	mA
Collector power dissipation	Pc	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Dimensions (Unit : mm)



• Inner circuit



R₁=2.2kΩ

DTD123TK Data Sheet

• 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	40	_	_	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	V _{EB} =4V
Collector-emitter saturation voltage	VCE(sat)	_	_	0.3	V	Ic/I _B =50m/2.5mA
DC current transfer ratio	hFE	100	250	600	_	VcE=5V, Ic=50mA
Input resistance	R ₁	1.54	2.2	2.86	kΩ	_
Transition frequency	f⊤ *	_	200		MHz	VcE=10V, IE=-50mA, f=100MHz

^{*} Characteristics of built-in transistor

• Electrical characteristic curves

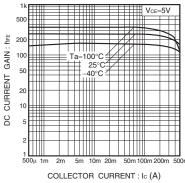


Fig.1 DC current gain vs. collector current

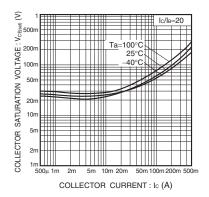


Fig.2 Collector-emitter saturation voltage vs. collector current

Notes

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