Transistors

# Digital transistors (built-in resistor) DTD123TK / DTD123TS

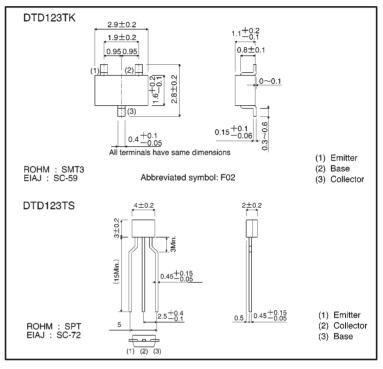
#### Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thinfilm resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.

•Structure NPN digital transistor (Built-in resistor type)



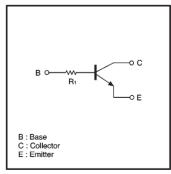
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# Absolute maximum ratings (Ta = 25°C)

Parameter	Cumbal	Limits(DT	Unit		
Parameter	Symbol	к	S	Unit	
Collector-base voltage	Vсво	50		V	
Collector-emitter voltage	VCEO	4	V		
Emitter-base voltage	Vево		V		
Collector current	lc	500		mA	
Collector power dissipation	Pc	200	300	mW	
Junction temperature	Tj	150		°C	
Storage temperature	Tstg	-55~+150		Ĵ	





### •Electrical characteristics (Ta = $25^{\circ}$ C)

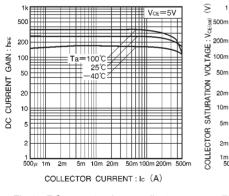
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Collector-base breakdown voltage	ВVсво	50	_		V	Ic=50 μ A	
Collector-emitter breakdown voltage	BVCEO	40	_	_	V	Ic=1mA	
Emitter-base breakdown voltage	BVEBO	5	_	_	V	IE=50 μ A	
Collector cutoff current	Ісво	_	_	0.5	μA	V <sub>CB</sub> =50V	
Emitter cutoff current	Іево	_	_	0.5	μA	V <sub>EB</sub> =4V	
Collector-emitter saturation voltage	VCE(sat)	_	_	0.3	V	Ic/I <sub>B</sub> =50m/2.5mA	
DC current transfer ratio	hfe	100	250	600	—	Vc==5V, lc=50mA	
Input resistance	Rı	1.54	2.2	2.86	kΩ		
Transition frequency	fī	_	200	_	MHz	VcE=10V, IE=-50mA, f=100MHz*	

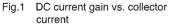
\* Transition frequency of the device

#### Packaging specifications

	Package	SMT3	SPT	
	Packaging type	Taping	Taping	
	Code	T146	TP	
Part No.	Basic ordering unit (pieces)	3000	5000	
DTD123TK		0	—	
DTD123TS		_	0	

#### Electrical characteristic curves





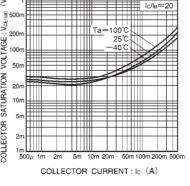


Fig.2 Collector-emitter saturation voltage vs. collector current

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