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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Digital transistors (built-in resistor)

DTD123TK / DTD123TS

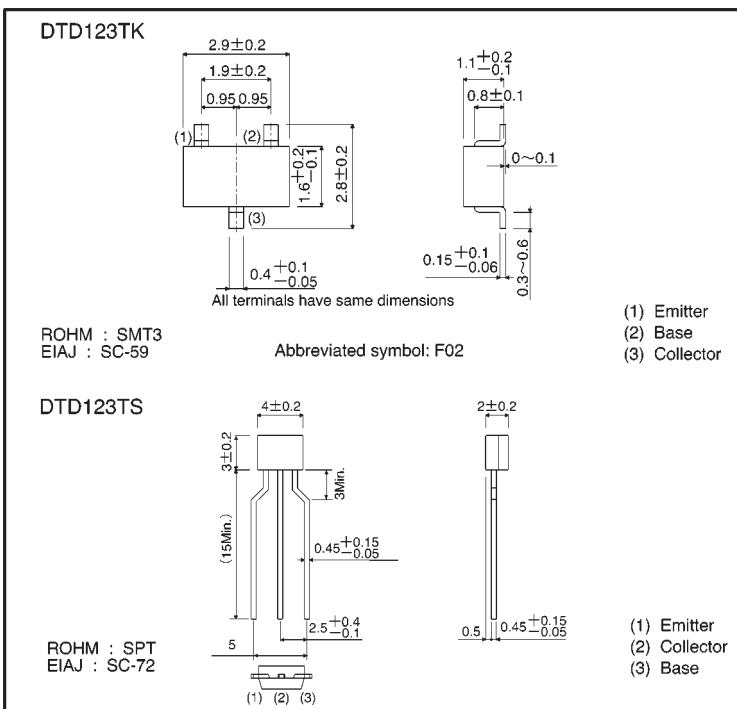
●Features

- 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 device design easy.

●Structure

NPN digital transistor
(Built-in resistor type)

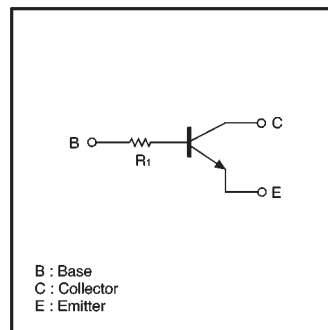
●External dimensions (Units: mm)



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits(DTD123T□)		Unit
		K	S	
Collector-base voltage	V _{CBO}	50		V
Collector-emitter voltage	V _{CEO}	40		V
Emitter-base voltage	V _{EBO}	5		V
Collector current	I _C	500		mA
Collector power dissipation	P _C	200	300	mW
Junction temperature	T _j	150		°C
Storage temperature	T _{stg}	-55~+150		°C

●Equivalent circuit



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CBO}	50	—	—	V	I _c =50 μA
Collector-emitter breakdown voltage	BV _{CEO}	40	—	—	V	I _c =1mA
Emitter-base breakdown voltage	BV _{EBO}	5	—	—	V	I _E =50 μA
Collector cutoff current	I _{CBO}	—	—	0.5	μA	V _{CB} =50V
Emitter cutoff current	I _{EBO}	—	—	0.5	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	—	—	0.3	V	I _c /I _b =50m/2.5mA
DC current transfer ratio	h _{FE}	100	250	600	—	V _{CE} =5V, I _c =50mA
Input resistance	R _i	1.54	2.2	2.86	kΩ	—
Transition frequency	f _r	—	200	—	MHz	V _{CE} =10V, I _E =-50mA, f=100MHz*

* Transition frequency of the device

●Packaging specifications

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

●Electrical characteristic curves

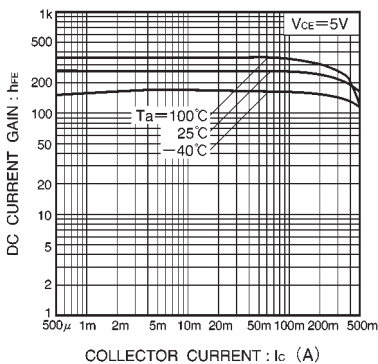


Fig.1 DC current gain vs. collector current

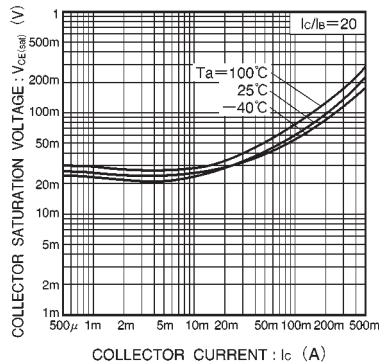


Fig.2 Collector-emitter saturation voltage vs. collector current