

Transistors

500mA / 50V Digital transistors (with built-in resistors)

DTD114GK

●Applications

Inverter, Interface, Driver

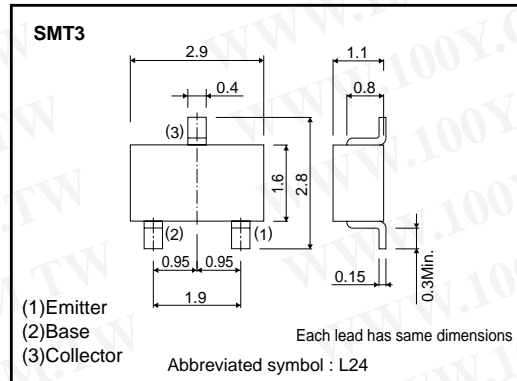
●Feature

- 1) The built-in bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input, and parasitic effects are almost completely eliminated.
- 2) Only the on / off conditions need to be set for operation, making the device design easy.
- 3) Higher mounting densities can be achieved.

●Structure

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

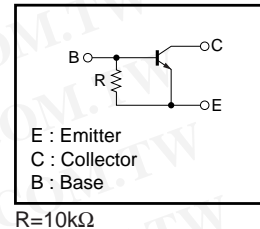
●External dimensions (Unit : mm)



●Packaging specifications

Package	SMT3
Packaging type	Taping
Code	T146
Basic ordering unit (pieces)	3000
Part No.	○
DTD114GK	○

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CEO}	50	V
Emitter-base voltage	V _{EBO}	5	V
Collector current	I _c	500	mA
Collector power dissipation	P _c	200	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	50	-	-	V	Ic=50μA
Collector-emitter breakdown voltage	BVCEO	50	-	-	V	Ic=1mA
Emitter-base breakdown voltage	BVEBO	5	-	-	V	Ie=720μA
Collector cutoff current	IcBO	-	-	0.5	μA	Vcb=50V
Emitter cutoff current	IeBO	300	-	580	μA	VEB=4V
Collector-emitter saturation voltage	VCE(sat)	-	-	0.3	V	Ic/Ib=50mA / 2.5mA
DC current transfer ratio	hFE	56	-	-	-	Ic=50mA, VCE=5V
Emitter-base resistance	R	7	10	13	kΩ	-
Transition frequency	f _T *	-	200	-	MHz	VCE=10V, Ie=-50mA, f=100MHz

* Characteristics of built-in transistor.

●Electrical characteristics curves

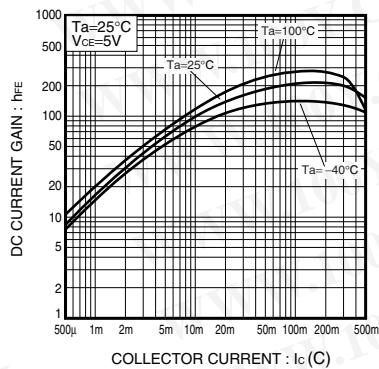


Fig.1 DC current transfer ratio vs. Collector current

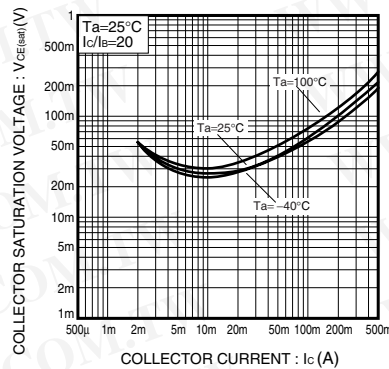


Fig.2 Collector-Emitter saturation voltage vs. Collector current

Appendix

Notes

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