

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

DTD114GK

●Applications

Inverter, Interface, Driver

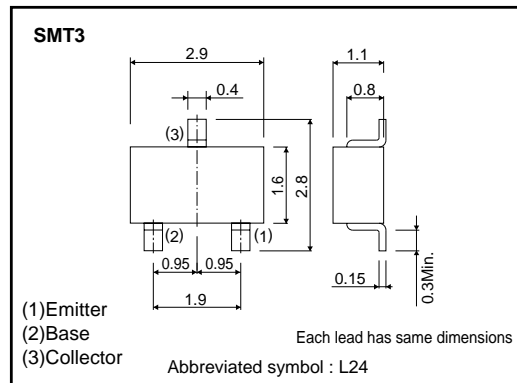
●Feature

- 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)

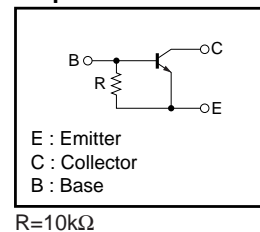
●External dimensions (Unit : mm)



●Packaging specifications

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

●Equivalent circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CE0}	50	V
Emitter-base voltage	V _{EB0}	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	BV _{CB0}	50	–	–	V	I _C =50μA
Collector-emitter breakdown voltage	BV _{CE0}	50	–	–	V	I _C =1mA
Emitter-base breakdown voltage	BV _{EB0}	5	–	–	V	I _E =720μA
Collector cutoff current	I _{CB0}	–	–	0.5	μA	V _{CB} =50V
Emitter cutoff current	I _{EB0}	300	–	580	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	–	–	0.3	V	I _C /I _B =50mA / 2.5mA
DC current transfer ratio	h _{FE}	56	–	–	–	I _C =50mA, V _{CE} =5V
Emitter-base resistance	R	7	10	13	kΩ	–
Transition frequency	f _T *	–	200	–	MHz	V _{CE} =10V, I _E =–50mA, f=100MHz

* Characteristics of built-in transistor.

●Electrical characteristics curves

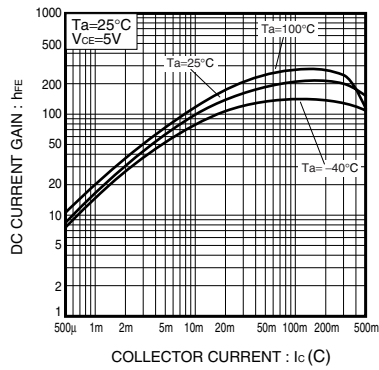


Fig.1 DC current transfer ratio vs. Collector current

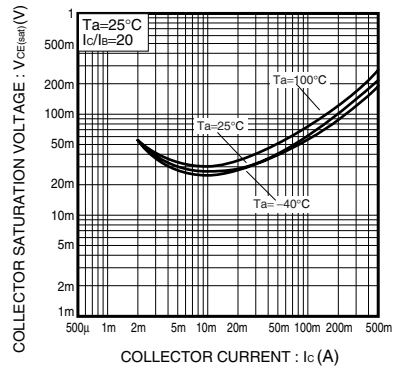


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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