

Digital transistors (built-in resistors)

DTD133HK / DTD133HS

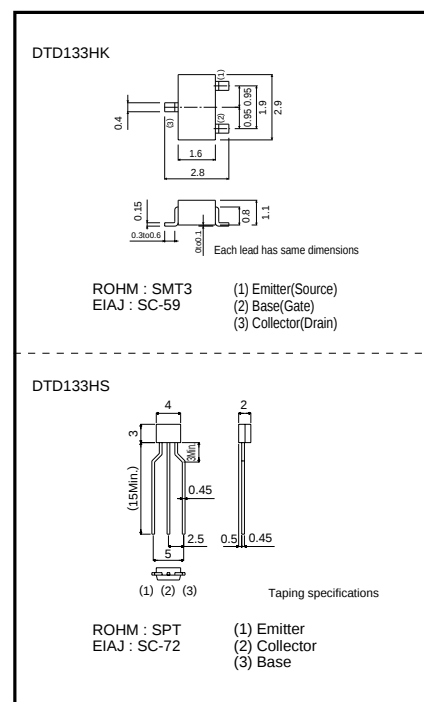
●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input, and parasitic effects are almost completely eliminated.
- 3) Only the on / off conditions need to be set for operation, making device design easy.
- 4) Higher mounting densities can be achieved.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	50	V
Input voltage	V _I	20 -6	V
Output current	I _C	500	mA
Power dissipation	P _d	200 300	mW
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55~+150	°C

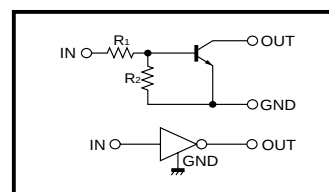
●External dimensions (Units : mm)



●Package, marking, and packaging specifications

Part No.	DTD133HK	DTD133HS
Package	SMT3	SPT
Marking	G08	-
Packaging code	T146	TP
Basic ordering unit (pieces)	3000	5000

●Circuit schematic



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V _{I(off)}	-	-	0.3	V	V _{CC} = 5V, I _O = 100μA
	V _{I(on)}	2	-	-	V	V _O = 0.3V, I _O = 20mA
Output voltage	V _{O(on)}	-	0.1	0.3	V	I _O = 50mA, I _I = 2.5mA
Input current	I _I	-	-	2.4	mA	V _I = 5V
Output current	I _{O(off)}	-	-	0.5	μA	V _{CC} = 50V, V _I = 0V
DC current gain	G _I	56	-	-	-	I _O = 50mA, V _O = 5V
Input resistance	R _I	2.31	3.3	4.29	kΩ	-
Resistance ratio	R ₂ /R ₁	2.4	3	3.7	-	-
Transition frequency	f _T	-	200	-	MHz	V _{CE} = 10V, I _E = -5mA, f = 100MHz

* Transition frequency of the device.