Digital transistors (built-in resistors)

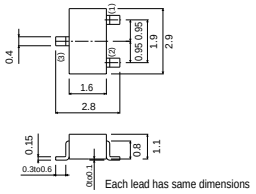
DTB133HK / DTB133HS

●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 positive 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.

●External dimensions (Units : mm)

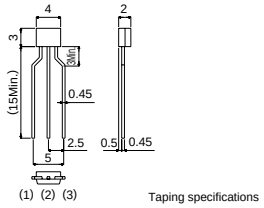
DTB133HK



ROHM : SMT3
EIAJ : SC-59

(1) Emitter(Source)
(2) Base(Gate)
(3) Collector(Drain)

DTB133HS



ROHM : SPT
EIAJ : SC-72

(1) Emitter
(2) Collector
(3) Base

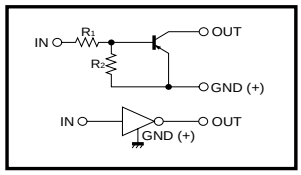
●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	–50	V
Input voltage		V_I	–20	V
			6	
Output current		I_C	–500	mA
Power dissipation	DTB133HK	Pd	200	mW
	DTB133HS		300	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55~150	°C

●Package, marking, and packaging specifications

Part No.	DTB133HK	DTB133HS
Package	SMT3	SPT
Marking	G98	-
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_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_1	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.