# Digital transistor (built-in resistors)
DTB122JK

●**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.

●**Circuit schematic**
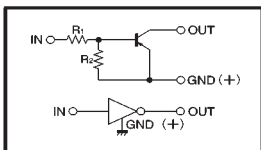
●**Absolute maximum ratings**（Ta＝25℃）

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	−50	V
Input voltage	VI	−5〜+5	V
Output current	Io	−500	mA
Power dissipation	Pd	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55〜+150	℃

●**Package, marking, and packaging specification**

Part No.	DTB122JK
Package	SMT3
Marking	G3C
Packaging code	T146
Basic ordering unit (pieces)	3000

●**Electrical characteristics**（Ta＝25℃）

| Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	−0.5	V	$V_{CC}=−5V$, $I_O=−100\mu A$
	$V_{I(on)}$	−2	—	—		$V_O=−0.3V$, $I_O=−30mA$
Output voltage	$V_{O(on)}$	—	−0.1	−0.3	V	$I_O/I_I=−50mA/−2.5mA$
Input current	I_I	—	—	−4.5	mA	$V_I=−5V$
Output current	$I_{O(off)}$	—	—	−10	μA	$V_{CC}=−30V$, $V_I=0V$
DC current gain	G_I	47	—	—	—	$I_O=−50mA$, $V_O=−5V$
Input resistance	R_1	154	220	286	Ω	—
Resistance ratio	R_2/R_1	17.1	21.3	25.6	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=−10V$, $I_E=50mA$, $f=100MHz$ ＊

＊ Transition frequency of the device.

(96-296-B122J)

Digital transistor (built-in resistors)
DTD122JK

●**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.

●**Circuit schematic**
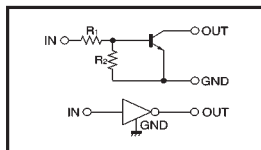
●**Absolute maximum ratings**（Ta＝25℃）

Parameter	Symbol	Limits	Unit
Supply voltage	Vcc	50	V
Input voltage	VI	−5〜+5	V
Output current	Io	500	mA
Power dissipation	Pd	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55〜+150	℃

●**Package, marking, and packaging specification**

Part No.	DTD122JK
Package	SMT3
Marking	G4C
Packaging code	T146
Basic ordering unit (pieces)	3000

●**Electrical characteristics**（Ta＝25℃）

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	0.5	V	$V_{CC}=5V$, $I_O=100\mu A$
	$V_{I(on)}$	2	—	—		$V_O=0.3V$, $I_O=30mA$
Output voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I=50mA/2.5mA$
Input current	I_I	—	—	45	mA	$V_I=5V$
Output current	$I_{O(off)}$	—	—	0.5	μA	$V_{CC}=50V$, $V_I=0V$
DC current gain	G_I	47	—	—	—	$I_O=50mA$, $V_O=5V$
Input resistance	R_1	154	220	286	Ω	—
Resistance ratio	R_2/R_1	17.1	21.3	25.6	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=10V$, $I_E=−50mA$, $f=100MHz$ ＊

＊ Transition frequency of the device.

(96-364-D122J)

ROHM