

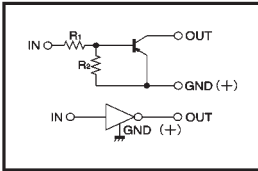
Digital transistors (built-in resistors)

DTA144WE / DTA144WUA / DTA144WKA / DTA144WSA

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



Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{(off)}$	—	—	-0.8	V	$V_{CC} = -5V$, $I_o = -100 \mu A$
	$V_{(on)}$	-4	—	—		$V_o = -0.3V$, $I_o = -2mA$
Output voltage	$V_{O(on)}$	—	-0.1	-0.3	V	$I_o = -10mA$, $I_i = -0.5mA$
Input current	I_i	—	—	-0.16	mA	$V_i = -5V$
Output current	$I_{O(off)}$	—	—	-0.5	μA	$V_{CC} = -50V$, $V_i = 0V$
DC current gain	G_i	56	—	—		$I_o = -5mA$, $V_o = -5V$
Input resistance	R_i	32.9	47	61.1	k Ω	—
Resistance ratio	R_2/R_1	0.37	0.47	0.57	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE} = -10V$, $I_E = 5mA$, $f = 100MHz$ *

* Transition frequency of the device.

(94S-579-144W)

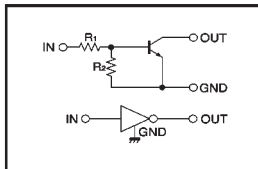
Digital transistors (built-in resistors)

DTC144WE / DTC144WUA / DTC144WKA / DTC144WSA

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



Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{(off)}$	—	—	0.8	V	$V_{CC} = 5V$, $I_o = 100 \mu A$
	$V_{(on)}$	4	—	—		$V_o = 0.3V$, $I_o = 2mA$
Output voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_o = 10mA$, $I_i = 0.5mA$
Input current	I_i	—	—	0.16	mA	$V_i = 5V$
Output current	$I_{O(off)}$	—	—	0.5	μA	$V_{CC} = 50V$, $V_i = 0V$
DC current gain	G_i	56	—	—		$I_o = 5mA$, $V_o = 5V$
Input resistance	R_i	32.9	47	61.1	k Ω	—
Resistance ratio	R_2/R_1	0.37	0.47	0.57	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE} = 10V$, $I_E = -5mA$, $f = 100MHz$ *

* Transition frequency of the device.

(94S-701-C144W)

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_i	-40 ~ +10	V
Output current	I_o	-30	mA
	$I_{C(Max)}$	-100	mA
Power dissipation	P_d	150	mW
		200	
		300	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

Package, marking, and packaging specifications

Part No.	DTA144WE	DTA144WUA	DTA144WKA	DTA144WSA
Package	EMT3	UMT3	SMT3	SPT
Marking	76	76	76	—
Packaging code	TL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_i	-10 ~ +40	V
Output current	I_o	30	mA
	$I_{C(Max)}$	100	mA
Power dissipation	P_d	150	mW
		200	
		300	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

Package, marking, and packaging specifications

Part No.	DTC144WE	DTC144WUA	DTC144WKA	DTC144WSA
Package	EMT3	UMT3	SMT3	SPT
Marking	86	86	86	—
Packaging code	TL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000