

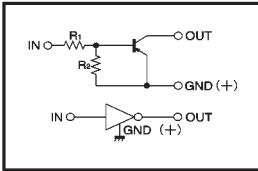
## Digital transistors (built-in resistors)

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	$\mu A$	$V_{CC} = -50V, V_{I} = 0V$
DC current gain	$G_{I}$	56	—	—	—	$I_{O} = -5mA, V_{O} = -5V$
Input resistance	$R_{I}$	32.9	47	61.1	k $\Omega$	—
Resistance ratio	$R_{2}/R_{1}$	0.37	0.47	0.57	—	—
Transition frequency	$f_{r}$	—	250	—	MHz	$V_{CE} = -10V, I_{E} = 5mA, f = 100MHz$ *

\* Transition frequency of the device.

(94S-579-144W)

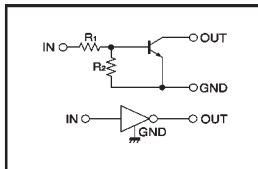
## Digital transistors (built-in resistors)

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	$\mu A$	$V_{CC} = 50V, V_{I} = 0V$
DC current gain	$G_{I}$	56	—	—	—	$I_{O} = 5mA, V_{O} = 5V$
Input resistance	$R_{I}$	32.9	47	61.1	k $\Omega$	—
Resistance ratio	$R_{2}/R_{1}$	0.37	0.47	0.57	—	—
Transition frequency	$f_{r}$	—	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
	$I_{O}$	-30	mA
Output current	$I_{C(Max)}$	-100	mA
		150	
Power dissipation	DTA144WE	150	mW
	DTA144WUA / DTA144WKA	200	
	DTA144WSA	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 ~ +10	V
	$I_{O}$	30	mA
Output current	$I_{C(Max)}$	100	mA
		150	
Power dissipation	DTC144WE	150	mW
	DTC144WUA / DTC144WKA	200	
	DTC144WSA	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