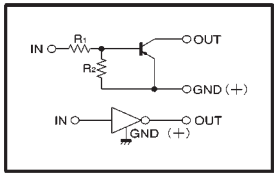
Digital transistors (built-in resistors)

DTA114WE / DTA114WUA / DTA114WKA / DTA114WSA

●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		V_{CC}	−50	V
Input voltage		V_I	−30～+10	V
Output current		I_O	−100	mA
		$I_{C(Max.)}$	−100	
Power dissipation	DTA114WE	Pd	150	mW
	DTA114WUA / DTA114WKA		200	
	DTA114WSA		300	
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

●Package, marking, and packaging specifications

Part No.	DTA114WE	DTA114WUA	DTA114WKA	DTA114WSA
Package	EMT3	UMT3	SMT3	SPT
Marking	74	74	74	—
Packaging code	TL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	−0.8	V	V_{CC}=−50V , I_O=−100 μA
	$V_{I(on)}$	−3	—	—		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	—	—	−0.88	mA	V_I=−5V
Output current	$I_{O(off)}$	—	—	−0.5	μA	V_{CC}=−50V , V_I=0V
DC current gain	G_I	24	—	—	—	I_O=−10mA , V_O=−5V
Input resistance	R_1	7	10	13	kΩ	—
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-516-A114W)

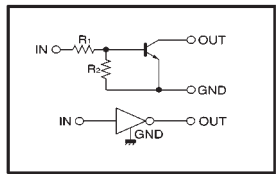
Digital transistors (built-in resistors)

DTC114WE / DTC114WUA / DTC114WKA / DTC114WSA

●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		V_{CC}	50	V
Input voltage		V_I	−10～+30	V
Output current		I_O	100	mA
		$I_{C(Max.)}$	100	
Power dissipation	DTC114WE	Pd	150	mW
	DTC114WUA / DTC114WKA		200	
	DTC114WSA		300	
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

●Package, marking, and packaging specifications

Part No.	DTC114WE	DTC114WUA	DTC114WKA	DTC114WSA
Package	EMT3	UMT3	SMT3	SPT
Marking	84	84	84	—
Packaging code	TL	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	3000	5000

●Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	0.8	V	V_{CC}=5V , I_O=100 μA
	$V_{I(on)}$	3	—	—		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	—	—	0.88	mA	V_I=5V
Output current	$I_{O(off)}$	—	—	0.5	μA	V_{CC}=50V , V_I=0V
DC current gain	G_I	24	—	—	—	I_O=10mA , V_O=5V
Input resistance	R_1	7	10	13	kΩ	—
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-635-C114W)