

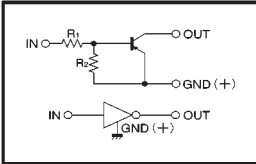
Digital transistor (built-in resistors)

DTA144VUA / DTA144VKA / DTA144VSA

●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	$V_{I(off)}$	—	—	-1	V	$V_{CC} = -5V, I_o = -100 \mu A$
	$V_{I(on)}$	-5	—	—	V	$V_o = -0.3V, I_o = -2mA$
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	33	—	—	—	$I_o = -5mA, V_o = -5V$
Input resistance	R_i	32.9	47	61.1	k Ω	—
Resistance ratio	R_2/R_1	0.17	0.21	0.26	—	—
Transition frequency	f_r	—	250	—	MHz	$V_{CE} = -10V, I_E = 5mA, f = 100MHz$ *

* Transition frequency of the device.

(94S-576-A144V)

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_i	-40 ~ +15	V
	I_o	-30	mA
Output current	$I_{C(Max)}$	-10	mA
	Power dissipation	Pd	200
300			
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

●Package, marking, and packaging specifications

Part No.	DTA144VUA	DTA144VKA	DTA144VSA
Package	UMT3	SMT3	SPT
Marking	E56	E56	—
Packaging code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000

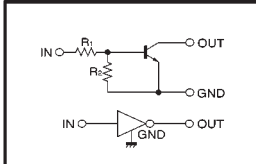
Digital transistor (built-in resistors)

DTC144VUA / DTC144VKA / DTC144VSA

●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	$V_{I(off)}$	—	—	1	V	$V_{CC} = 5V, I_o = 100 \mu A$
	$V_{I(on)}$	5	—	—	V	$V_o = 0.3V, I_o = 2mA$
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	33	—	—	—	$I_o = 5mA, V_o = 5V$
Input resistance	R_i	32.9	47	61.1	k Ω	—
Resistance ratio	R_2/R_1	0.17	0.21	0.26	—	—
Transition frequency	f_r	—	250	—	MHz	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$ *

* Transition frequency of the device.

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_i	-15 ~ +40	V
	I_o	30	mA
Output current	$I_{C(Max)}$	100	mA
	Power dissipation	Pd	200
300			
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

●Package, marking, and packaging specifications

Part No.	DTC144VUA	DTC144VKA	DTC144VSA
Package	UMT3	SMT3	SPT
Marking	E66	E66	—
Packaging code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000