

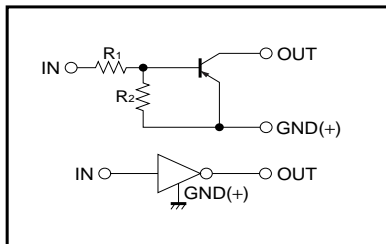
# Digital transistor (built-in resistors)

## DTA144VKA / DTA144VSA

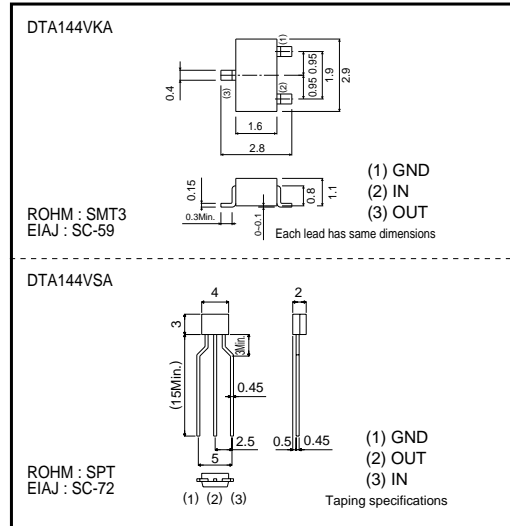
### ●Features

- 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.

### ●Equivalent circuit



### ●External dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V <sub>cc</sub>	-50	V
Input voltage	V <sub>i</sub>	-40 to +15	V
Output current	I <sub>o</sub>	-30	mA
	I <sub>c(Max.)</sub>	-100	
Power dissipation	DTA144VKA	200	mW
	DTA144VSA	300	
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

### ●Packaging, marking and packaging specifications

Type	DTA144VKA	DTA144VSA
Package	SMT3	SPT
Marking	E56	-
Packaging code	T146	TP
Basic ordering unit (pieces)	3000	5000

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	-	-	-1	V	$V_{CC} = -5V, I_o = -100\mu A$
	$V_{I(on)}$	-6	-	-		$V_o = -0.3V, I_o = -2mA$
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	$G_i$	33	-	-	-	$I_o = -5mA, V_o = -5V$
Input resistance	$R_1$	32.9	47	61.1	k $\Omega$	-
Resistance ratio	$R_2/R_1$	0.17	0.21	0.26	-	-
Transition frequency	$f_T$	-	250	-	MHz	$V_{CE} = -10V, I_E = 5mA, f = 100MHz$ *

\* Transition frequency of the device.

●Electrical characteristic curves

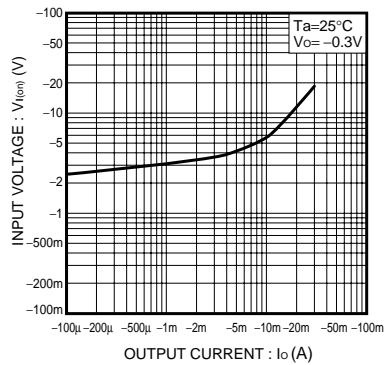


Fig.1 Input voltage vs. Output current (ON characteristics)

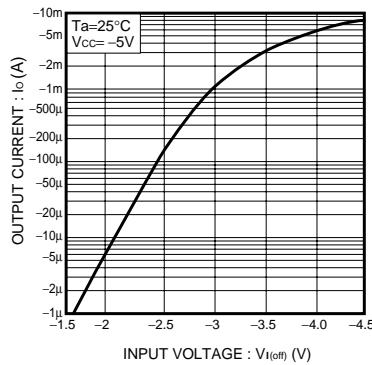


Fig.2 Output current vs. Input voltage (OFF characteristics)

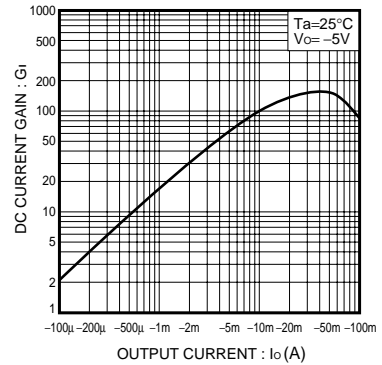


Fig.3 DC current gain vs. Output current characteristics

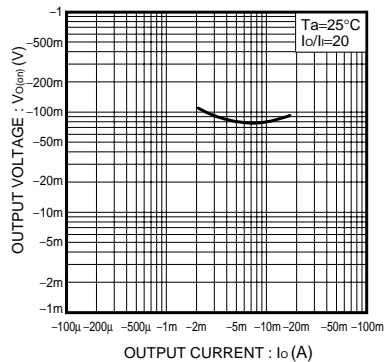


Fig.4 Output voltage vs. Output current characteristics

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