

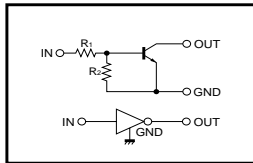
# Digital transistor (built-in resistors)

## DTC144VUA / DTC144VKA / DTC144VSA

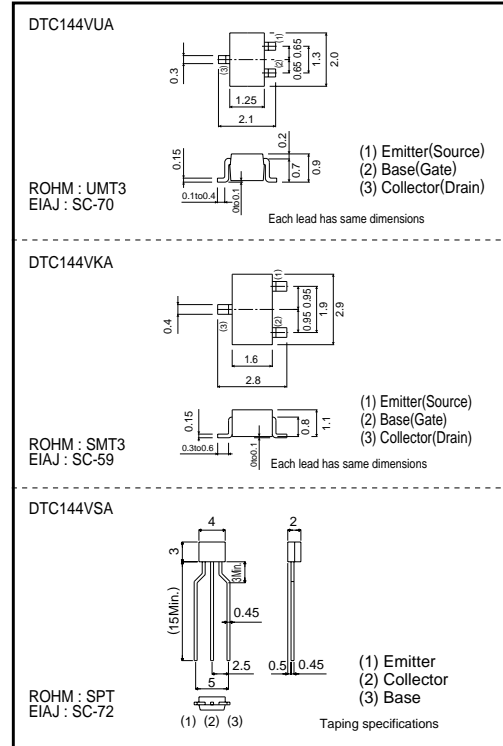
### ●Features

- 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.

### ●Equivalent circuit



### ●External dimensions (Units : 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>	-15~+40	V	
Output current	I <sub>o</sub>	30	mA	
	I <sub>c(Max)</sub>	100		
Power dissipation	DTC144VUA / DTC144VKA DTC144VSA	P <sub>d</sub>	200	mW
		300		
Junction temperature	T <sub>J</sub>	150	°C	
Storage temperature	T <sub>stg</sub>	-55~+150	°C	

### ●Packaging, marking and packaging specifications

Type	DTC144VUA	DTC144VKA	DTC144VSA
Package	UMT3	SMT3	SPT
Marking	166	E66	-
Packaging code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000

### ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V <sub>i(off)</sub>	-	-	1	V	V <sub>CC</sub> =5V, I <sub>o</sub> =100μA
	V <sub>i(on)</sub>	6	-	-		V <sub>o</sub> =0.3V, I <sub>o</sub> =2mA
Output voltage	V <sub>o(on)</sub>	-	0.1	0.3	V	I <sub>o</sub> =10mA, I <sub>i</sub> =0.5mA
Input current	I <sub>i</sub>	-	-	0.16	mA	V <sub>i</sub> =5V
Output current	I <sub>o(off)</sub>	-	-	0.5	μA	V <sub>CC</sub> =50V, V <sub>i</sub> =0V
DC current gain	G <sub>i</sub>	33	-	-	-	I <sub>o</sub> =5mA, V <sub>o</sub> =5V
Input resistance	R <sub>i</sub>	32.9	47	61.1	kΩ	-
Resistance ratio	R <sub>z</sub> /R <sub>i</sub>	0.17	0.21	0.26	-	-
Transition frequency	f <sub>t</sub>	-	250	-	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz

\* Transition frequency of the device.