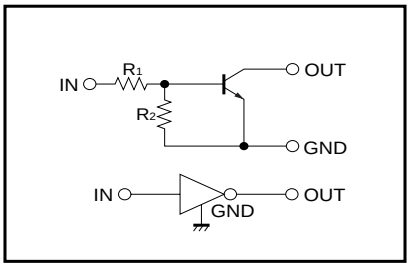
Digital transistor (built-in resistors)

DTC144VUA / DTC144VKA / DTC144VSA

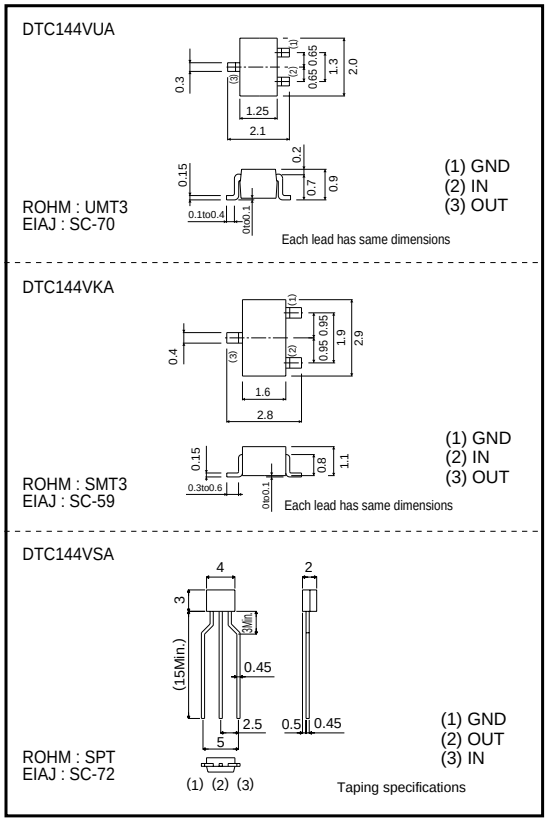
●Features

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 (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Supply voltage		V_{CC}	50	V
Input voltage		V_I	−10 to +40	V
Output curren		I_O	30	mA
		$I_{C(Max.)}$	100	
Power dissipation	DTC144VUA / DTC144VKA	Pd	200	mW
	DTC144VSA		300	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	−55 to +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	$V_{I(off)}$	–	–	1	V	V_{CC}=5V , I_O=100μA
	$V_{I(on)}$	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	μA	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	kΩ	–
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

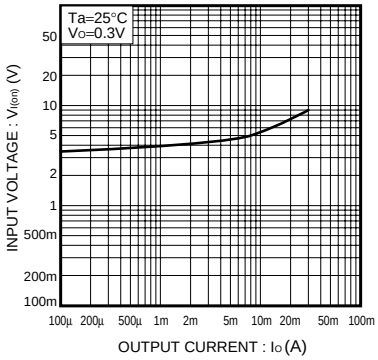


Fig.1 Input voltage vs. Output current (ON characteristics)

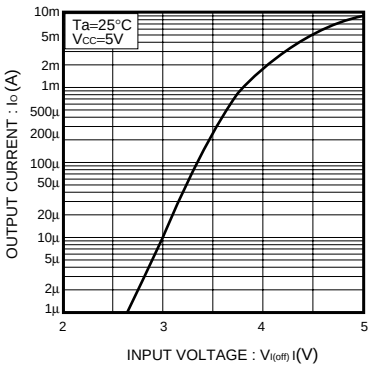


Fig.2 Output current vs. Input voltage (OFF characteristics)

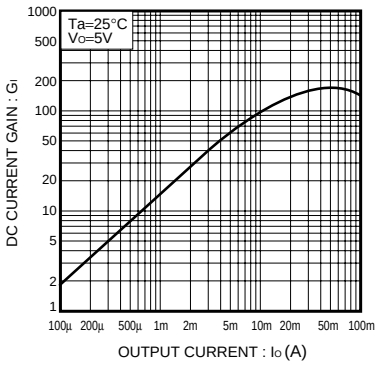


Fig.3 DC current gain vs. Output current

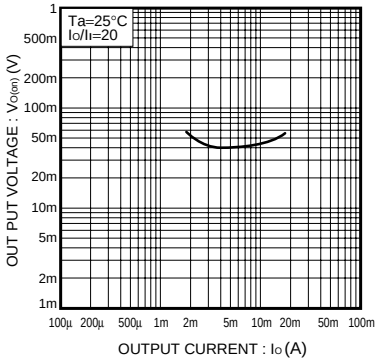


Fig.4 Output voltage vs. Output current

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