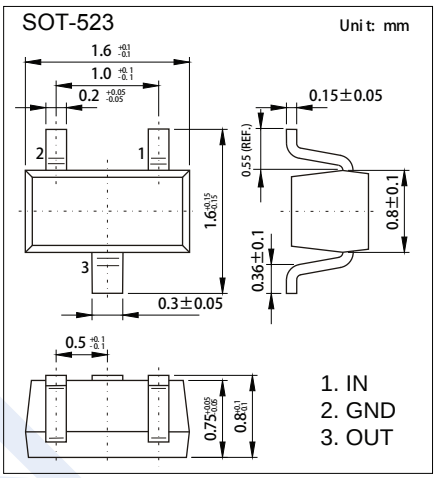
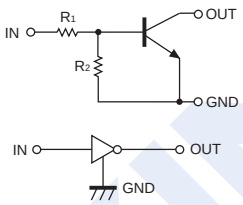
Digital Transistors

DTC143EE (KTC143EE)

■ Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.





■ Absolute Maximum Ratings (Ta = 25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	−10 to +30	
Output current	I_O	100	mA
	$I_{C(Max.)}$	100	
Power dissipation	P_d	150	mW
Junction Temperature	T_J	150	℃
Storage Temperature Range	Tstg	-55 to 150	

■ Electrical Characteristics (Ta = 25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V, I_O=100μA			0.5	V
	$V_{I(on)}$	V_O=0.3V, I_O=20mA	3			
Output voltage	$V_{O(on)}$	I_O/I_I=10mA/0.5mA			0.3	
Input current	I_I	V_I=5V			1.8	mA
Output current	$I_{O(off)}$	V_{CC}=50V, V_I=0V			0.5	μA
DC current gain	G_I	V_O=5V, I_O=10mA	30			
Input resistance	R_1		3.29	4.7	6.11	kΩ
Resistance ratio	R_2/R_1		0.8	1	1.2	
Transition frequency	f_T	V_{CE}=10V, I_E= −5mA, f=100MHz*		250		MHz

* Transition frequency of the device

■ Marking:23

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■ Typical Characterisitics

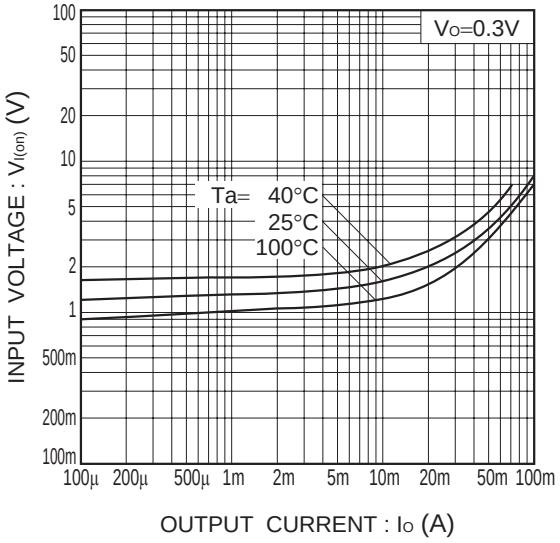

Fig.1 Input voltage vs. output current (ON characteristics)

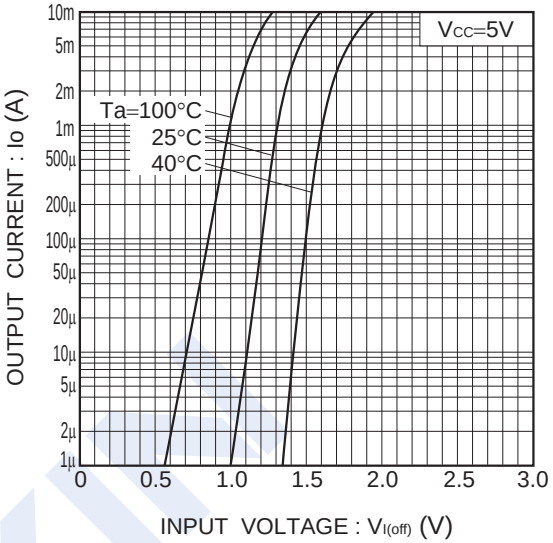

Fig.2 Output current vs. input voltage (OFF characteristics)

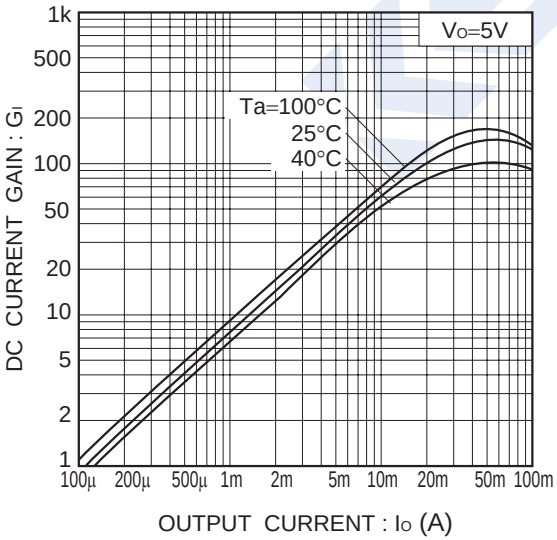

Fig.3 DC current gain vs. output current

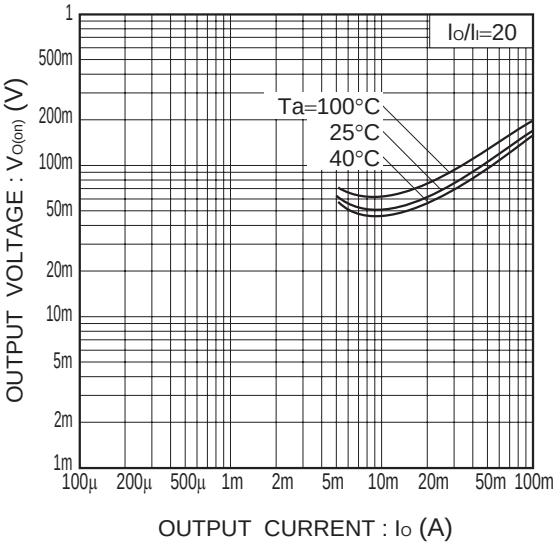

Fig.4 Output voltage vs. output current