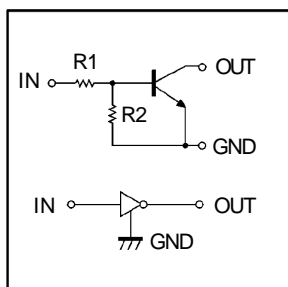


Digital transistors (built-in resistors)

• Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thinfilm 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.

DTC115EKA



EIAJ: SC—59

● Absolute maximum ratings ($T_a=25\text{ }^\circ\text{C}$)

Parameter	symbol	Limits	unit
Supply voltage	V_{cc}	50	V
Input voltage	V_{IN}	-40 ~ +10	V
Output current	I_O	20	mA
	$I_{C(Max.)}$	100	
Power dissipation	P_d	200	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

● Electrical characteristics ($T_a=25\text{ }^\circ\text{C}$)

Parameter	symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	0.5	V	$V_{cc}=5V, I_O=100\mu A$
	$V_{I(on)}$	3	—	—		$V_O=0.3V, I_O=1mA$
Output Voltage	$V_{O(on)}$	—	0.1	0.3	V	$I_O/I_I=5mA/0.25mA$
Input current	I_I	—	—	0.15	mA	$V_I=5V$
Output current	$I_{O(off)}$	—	—	0.5	μA	$V_{cc}=50V, V_I=0V$
DC current gain	G_I	82	—	—	—	$V_O=5V, I_O=5mA$
Input resistance	R_1	70	100	130	K Ω	—
Resistance ratio	R_2/R_1	0.8	1	1.2	—	—
Transition frequency	f_T	—	250	—	MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz^*$

*Transition frequency of the device