

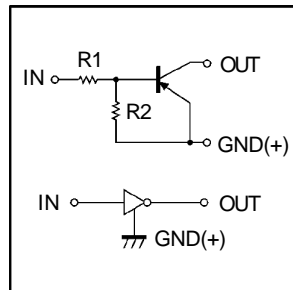
Digital transistors (built-in resistors)

• **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.

DTA115EKA

• **Circuit schematic**



EIAJ: SC—59

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

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	DTA115EE	P_d	150	mW
	DTA115EUA/DTA115EKA		200	
	DTA115ESA		300	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature		T_{stg}	-55~+150	$^\circ\text{C}$

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

Parameter	symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	—	—	-0.5	V	$V_{CC} = -5V, I_O = -100\mu\text{A}$
	$V_{I(on)}$	-3	—	—		$V_{O} = -0.3V, I_O = -1\text{mA}$
Output Voltage	$V_{O(on)}$	—	-0.1	-0.3	V	$I_O / I_I = -5\text{mA} / -0.25\text{mA}$
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	—	—	—	$V_{O} = -5V, I_O = -5\text{mA}$
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	$V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}^*$

*Transition frequency of the device