

Digital transistors (built-in resistors)

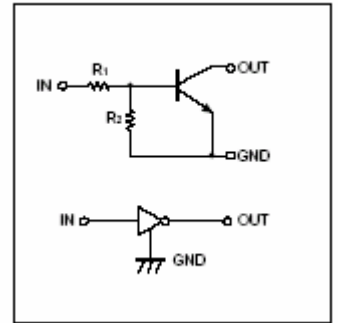
**DTC114EM/DTC114EE/DTC114EUA
DTC114EKA /DTC114ECA /DTC114ESA**

DIGITAL TRANSISTOR (NPN)

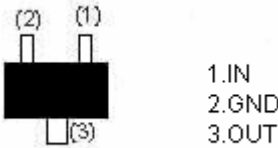
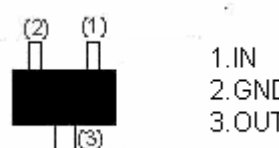
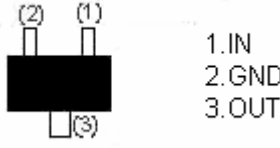
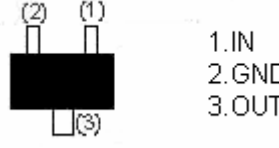
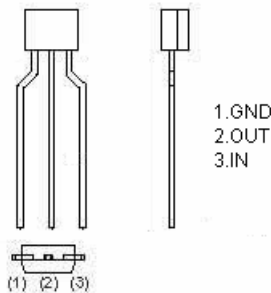

FEATURES

1. Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
2. 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
3. Only the on/off conditions need to be set for operation, making device design easy

●Equivalent circuit



PIN CONNENCTIONS AND MARKING

<p>DTC114EE</p>  <p>1.IN 2.GND 3.OUT</p> <p>SOT-523 Abbreviated symbol: 24</p>	<p>DTC114EUA</p>  <p>1.IN 2.GND 3.OUT</p> <p>SOT-323 Abbreviated symbol: 24</p>
<p>DTC114EKA</p>  <p>1.IN 2.GND 3.OUT</p> <p>SOT-23-3L Abbreviated symbol: 24</p>	<p>DTC114ECA</p>  <p>1.IN 2.GND 3.OUT</p> <p>SOT-23 Abbreviated symbol: 24</p>
<p>DTC114ESA</p>  <p>1.GND 2.OUT 3.IN</p> <p>TO-92S</p>	<p>DTC114EM</p>  <p>1.IN 2.GND 3.OUT</p> <p>SOT-723 Abbreviated symbol: 24</p>

Absolute maximum ratings(Ta=25°C)

Parameter	Symbol	Limits (DTC114E□)						Unit
		M	E	UA	KA	CA	SA	
Supply voltage	V _{CC}	50						V
Input voltage	V _{IN}	-10~40						V
Output current	I _O	50						mA
	I _{C(MAX)}	100						
Power dissipation	P _d	100	150	200		300		mW
Junction temperature	T _j	150						°C
Storage temperature	T _{stg}	-55~150						°C

Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input voltage	V _{I(off)}	0.5			V	V _{CC} =5V, I _O =100μA
	V _{I(on)}			3		V _O =0.3V, I _O =10 mA
Output voltage	V _{O(on)}			0.3	V	I _O /I _I =10mA/0.5mA
Input current	I _I			0.88	mA	V _I =5V
Output current	I _{O(off)}			0.5	μA	V _{CC} =50V, V _I =0
DC current gain	G _I	30				V _O =5V, I _O =5mA
Input resistance	R ₁	7	10	13	KΩ	
Resistance ratio	R ₂ /R ₁	0.8	1	1.2		
Transition frequency	f _T		250		MHz	V _O =10V, I _O =5mA, f=100MHz

Typical Characteristics

DTC114ECA

