



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

Digital transistors (built-in resistors)

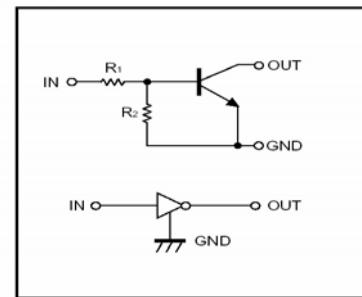
DTC123JE/DTC123JUA/ DTC123JKA/DTC123JCA / DTC123JSA

DIGITAL TRANSISTOR (NPN)

Features

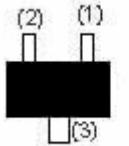
- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost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

● Equivalent circuit



PIN CONNECTIONS AND MARKING

DTC123JE

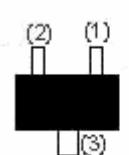


1.IN
2.GND
3.OUT

SOT-523

Addreviated symbol: E42

DTC123JUA

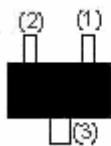


1.IN
2.GND
3.OUT

SOT-323

Addreviated symbol: E42

DTC123JKA

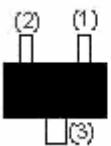


1.IN
2.GND
3.OUT

SOT-23-3L

Addreviated symbol: E42

DTC123JCA

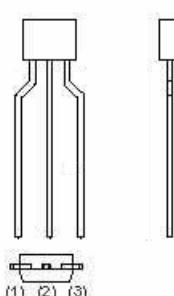


1.IN
2.GND
3.OUT

SOT-23

Addreviated symbol: E42

DTC123JSA



1.GND
2.OUT
3.IN

TO-92S

Absolute maximum ratings(Ta=25°C)

Parameter	Symbol	Limits (DTC123J□)					Unit				
		E	UA	KA	CA	SA					
Supply voltage	V _{CC}	50					V				
Input voltage	V _{IN}	-5~12					V				
Output current	I _O	100					mA				
	I _{C(MAX)}	100									
Power dissipation	P _d	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)}	1.1				V _O =0.3V, I _O =5 mA
Output voltage	V _{O(on)}		0.1	0.3	V	I _O /I _i =5mA/0.25mA
Input current	I _i			3.6	mA	V _i =5V
Output current	I _{O(off)}			0.5	μA	V _{CC} =50V, V _i =0
DC current gain	G _i	80				V _O =5V, I _O =10mA
Input resistance	R _i	1.54	2.2	2.86	KΩ	-
Resistance ratio	R ₂ /R ₁	17	21	26		-
Transition frequency	f _T		250		MHz	V _O =10V, I _O =-5mA, f=100MHz

Typical Characteristics

