

### 1. 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.

### 2.MAXIMUM RATINGS (Ta=25 °C unless otherwise noted)

Parameter	Symbol	Limits (DTC114E xx)						Unit
		M	E	UA	CA	KA	SA	
Supply Voltage	V <sub>CC</sub>	50						V
Input Voltage	V <sub>IN</sub>	-10~+40						V
Output Current	I <sub>O</sub>	100						mA
Power Dissipation	P <sub>D</sub>	100	150	200	200	200	300	mW
Operation Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55~+150						°C

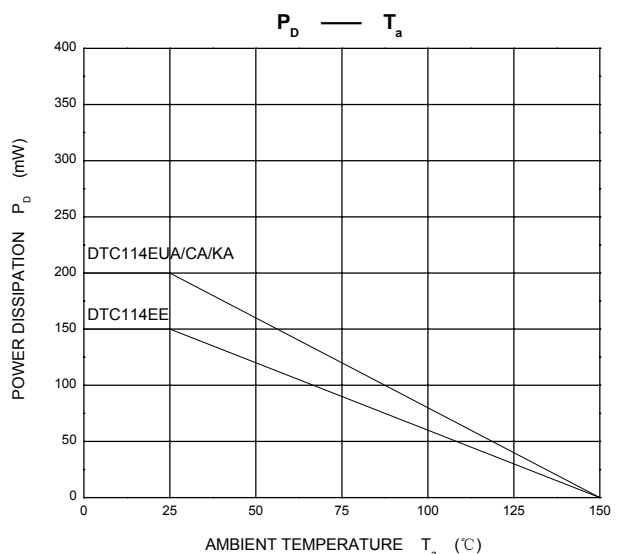
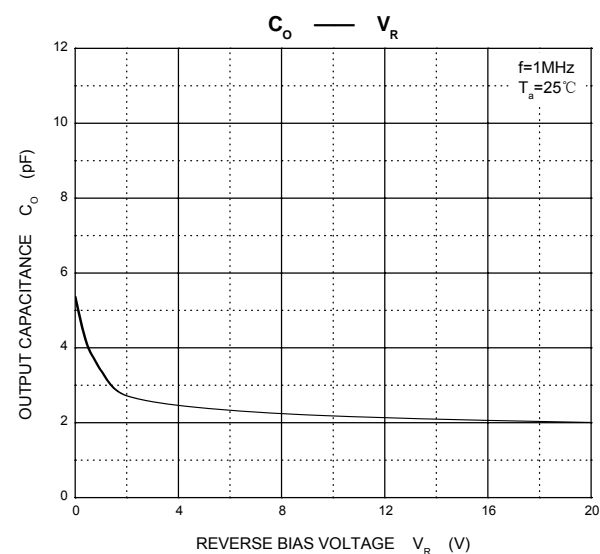
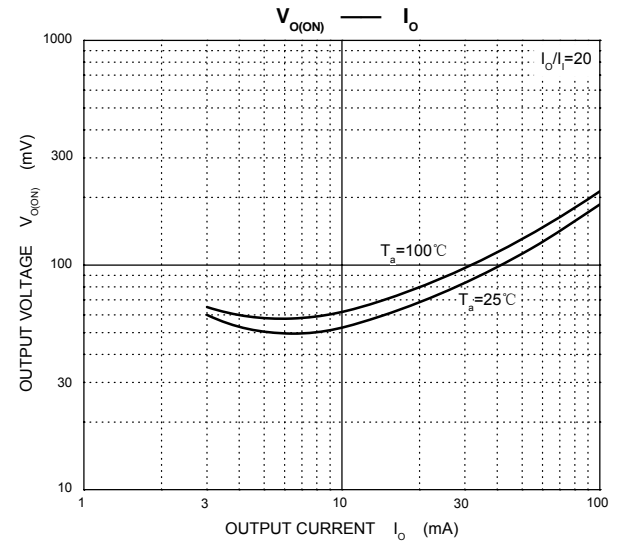
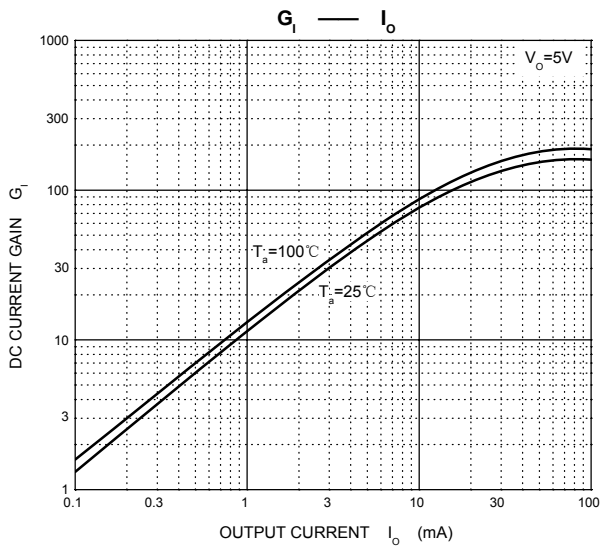
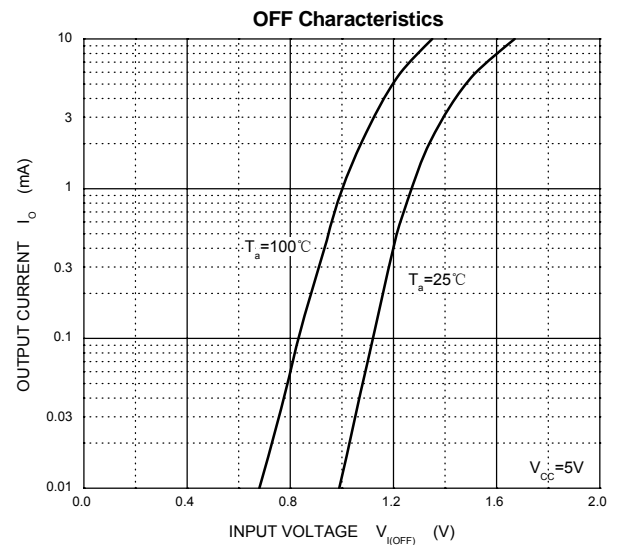
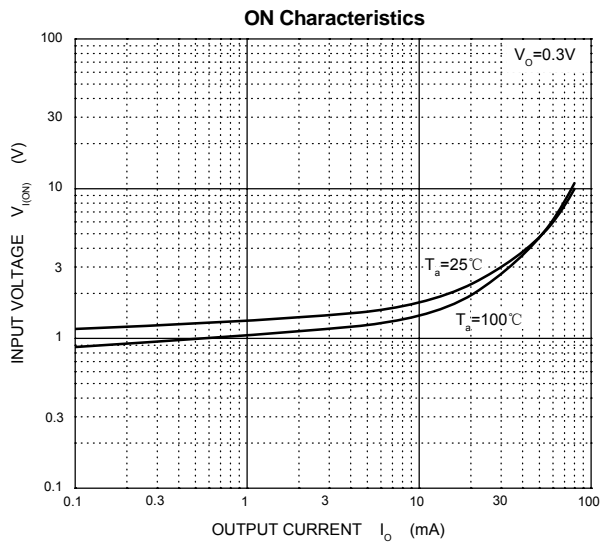
### 3. Electrical Characteristics (Ta=25 unless otherwise specified)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
R <sub>1</sub>	Input resistance		7	10	13	k
R <sub>2</sub> /R <sub>1</sub>	Resistance ratio		0.8	1	1.2	
V <sub>O(on)</sub>	Output voltage	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA	—	—	0.3	V
I <sub>I</sub>	Input current	V <sub>I</sub> =5V	—	—	0.88	mA
I <sub>O(off)</sub>	Output current	V <sub>CC</sub> =50V, V <sub>I</sub> =0	—	—	0.5	μA
G <sub>1</sub>	DC current gain	V <sub>O</sub> =5V, I <sub>O</sub> =5mA	30	—	—	
V <sub>I(off)</sub>	Input voltage	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	0.5	—	—	V
V <sub>I(on)</sub>		V <sub>O</sub> =0.3V, I <sub>O</sub> =10mA	—	—	3	V
f <sub>T</sub>	Transition frequency	V <sub>O</sub> =10V, I <sub>O</sub> =5mA , f=100MHz	—	250	—	MHz

## 4. Pinning information

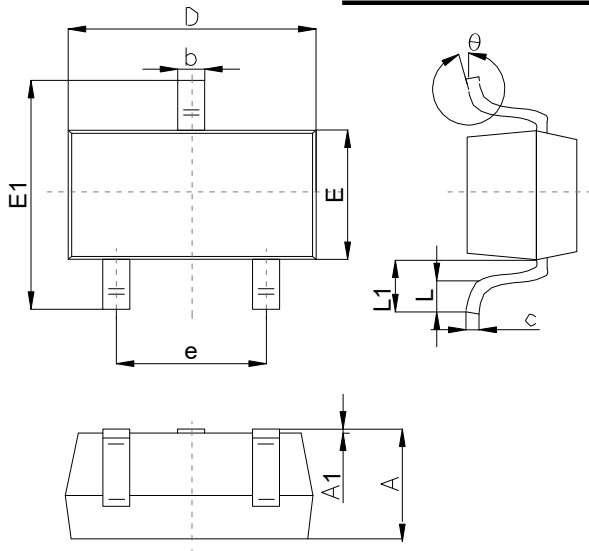
Pin	symbol	Part Number	Simplified outline	Equivalent Circuit	Marking	Package
1	IN	DTC114ECA			24	SOT-23
2	GND					
3	OUT					
1	IN	DTC114EKA				24
2	GND					
3	OUT					
1	IN	DTC114EE				24
2	GND					
3	OUT					
1	IN	DTC114EUA				24
2	GND					
3	OUT					

## 5. Electrical Characteristics Diagrams



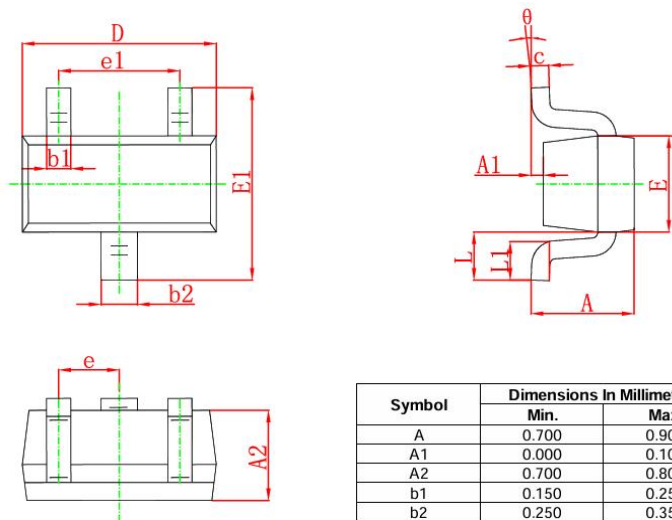
## 6 . Outline Drawing

### SOT-23 Package Outline Dimensions



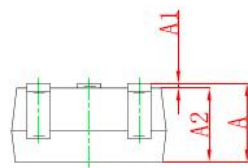
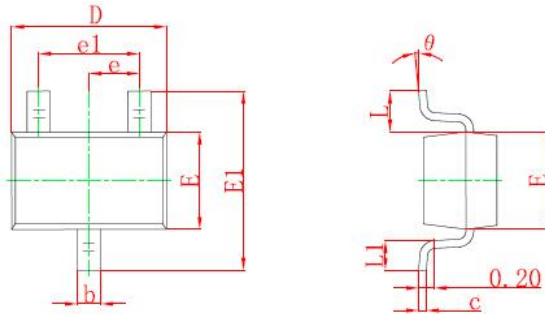
Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.65		1.40
A1	0.00		0.20
b	0.30		0.55
c	0.08		0.20
D	2.70		3.10
E	1.15		1.65
E1	2.10		2.80
e	1.70		2.10
L	0.15		0.50
L1	0.35		0.70
$\theta$	0°		12°

### SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
$\theta$	0°	8°	0°	8°

## SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

## 7. Important Notice and Disclaimer

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