

MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



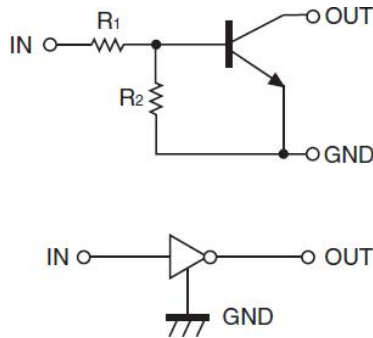
PLED

Product data sheet

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

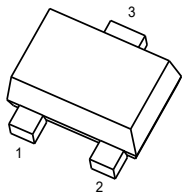
● **Equivalent Circuit**



● P/N	MARK
DTC114EM	24
DTC114EE	24
DTC114EUA	24
DTC114EKA	24
DTC114ECA	24

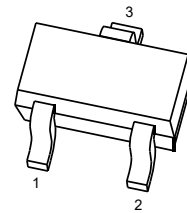
PIN CONNENCTIONS

DTC114EM
SOT-723



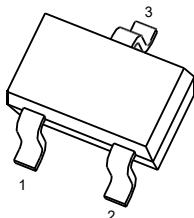
1. IN
2. GND
3. OUT

DTC114EE
SOT-523



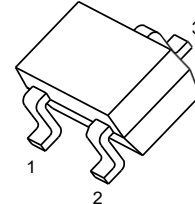
1. IN
2. GND
3. OUT

DTC114EUA
SOT-323



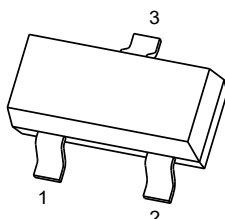
1. IN
2. GND
3. OUT

DTC114EKA
SOT-23-3L



1. IN
2. GND
3. OUT

DTC114ECA
SOT-23



1. IN
2. GND
3. OUT

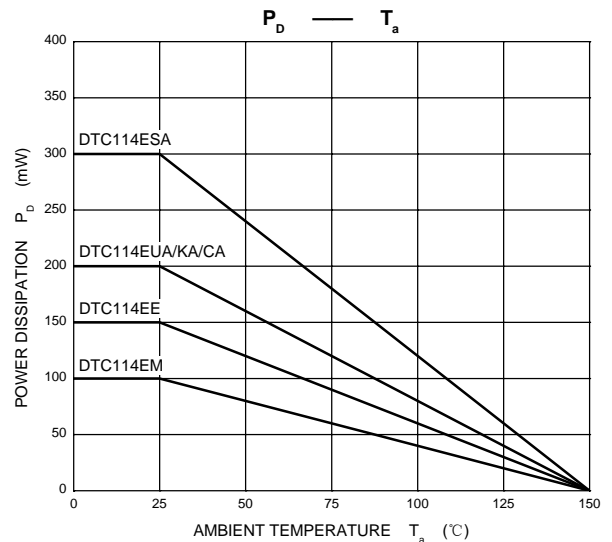
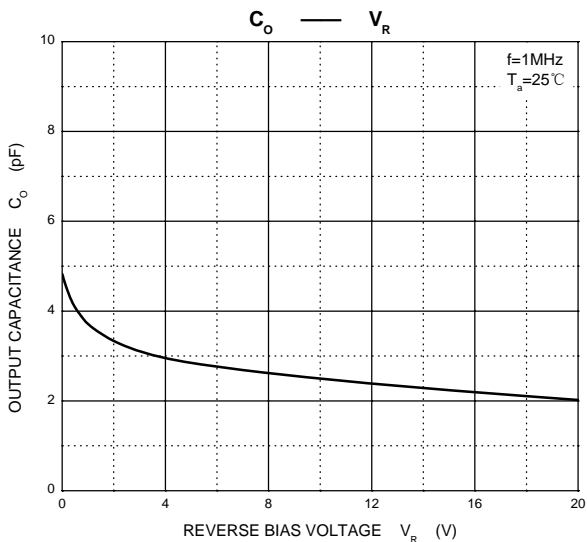
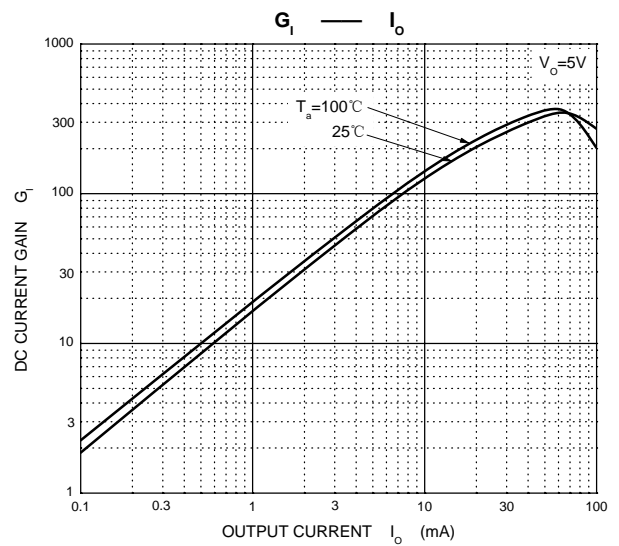
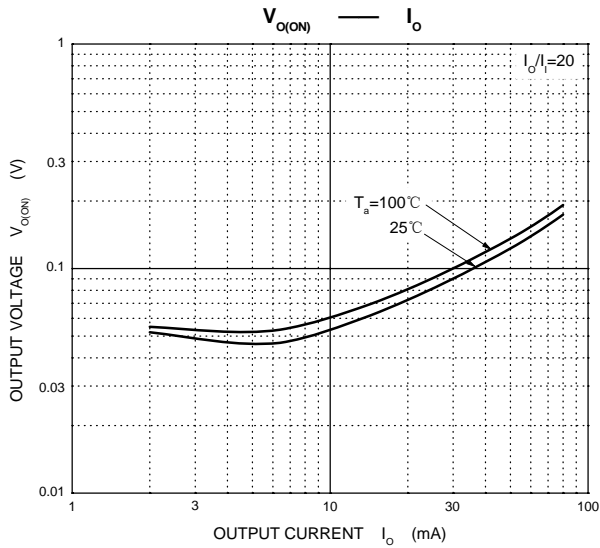
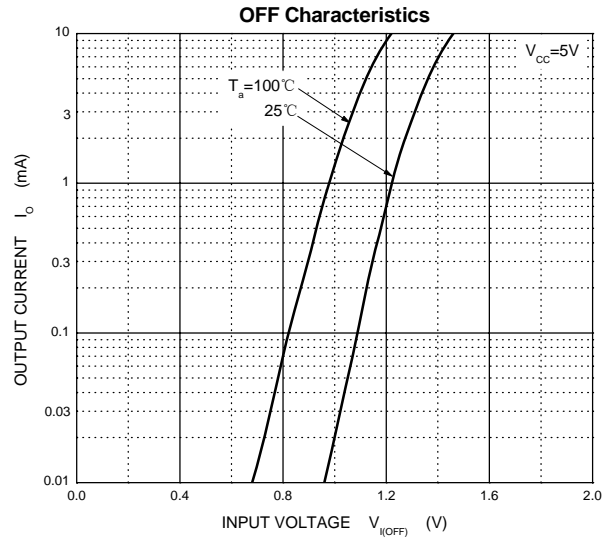
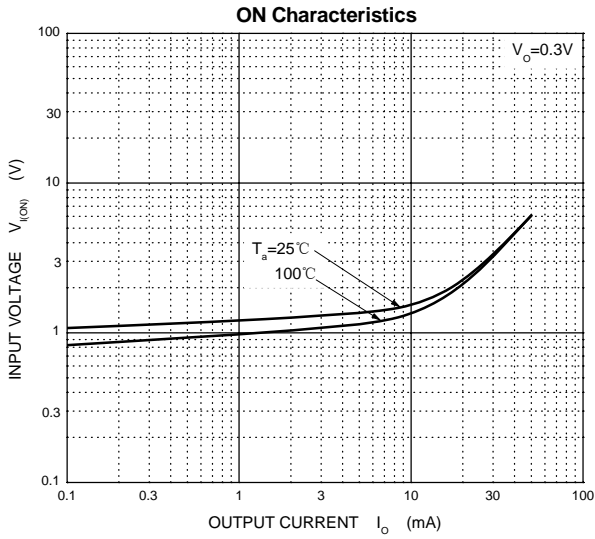
MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	DTC114EXX					Unit
		EM	EE	EUA	EKA	ECA	
V_{CC}	Supply Voltage	50					V
V_{IN}	Input Voltage	-10~+40					V
I_o	Output Current	50					mA
I_{CM}	Peak Collector Current	100					mA
P_D	Power Dissipation	100	150	200			mW
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150					$^{\circ}\text{C}$

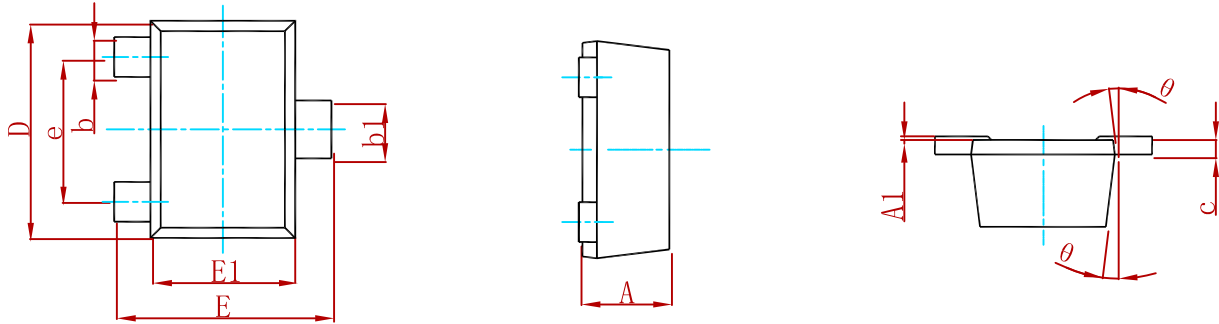
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_o=100\mu\text{A}$	0.5			V
	$V_{I(on)}$	$V_o=0.3V, I_o=10\text{mA}$			3	V
Output voltage	$V_{O(on)}$	$I_o/I_i=10\text{mA}/0.5\text{mA}$			0.3	V
Input current	I_i	$V_i=5V$			0.88	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_i=0$			0.5	μA
DC current gain	G_i	$V_o=5V, I_o=5\text{mA}$	30			
Input resistance	R_1		7	10	13	k Ω
Resistance ratio	R_2/R_1		0.8	1	1.2	
Transition frequency	f_T	$V_o=10V, I_o=5\text{mA}, f=100\text{MHz}$		250		MHz

Typical Characteristics

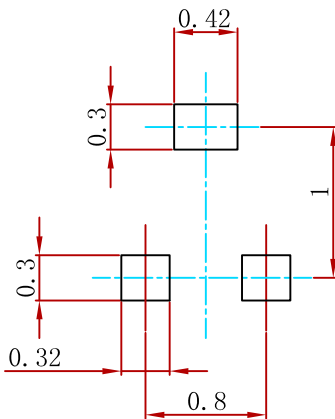


PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

Suggested Pad Layout

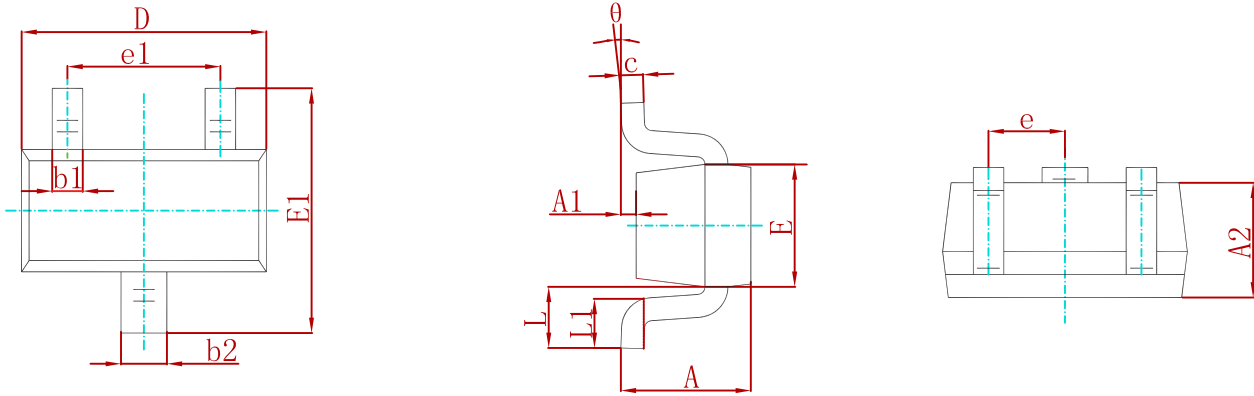


- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

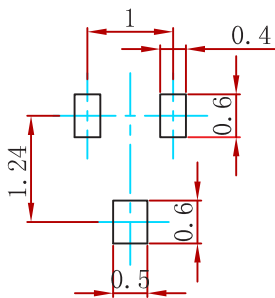
P/N	PKG	QTY
DTC114EM	SOT-723	8000

PACKAGE MECHANICAL DATA



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
θ	0°	8°	0°	8°

Suggested Pad Layout

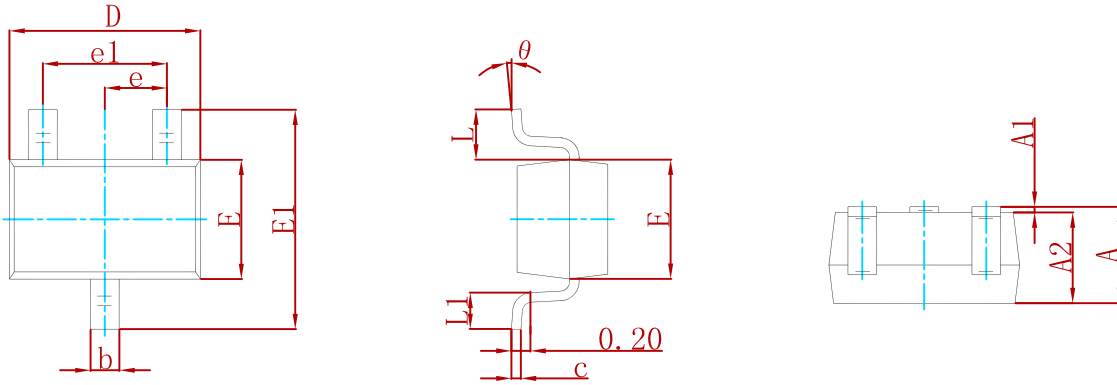


- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ±0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

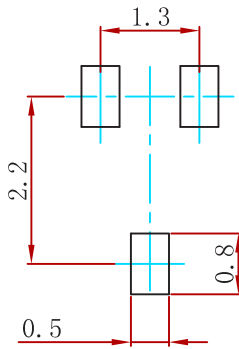
P/N	PKG	QTY
DTC114EE	SOT-523	3000

PACKAGE MECHANICAL DATA



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°

Suggested Pad Layout

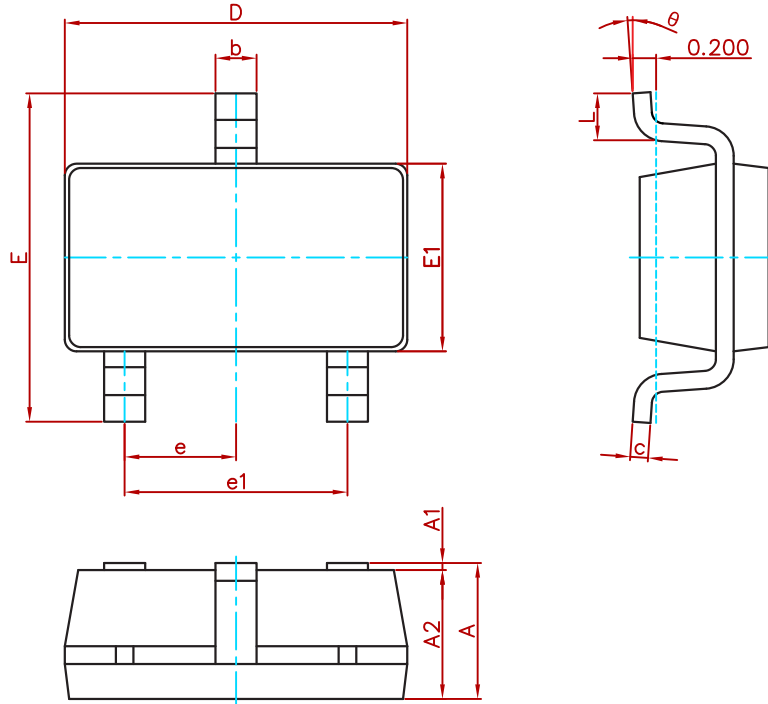


Note:
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 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

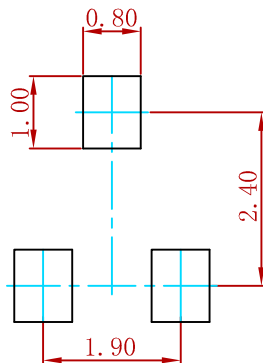
P/N	PKG	QTY
DTC114EUA	SOT-323	3000

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Suggested Pad Layout

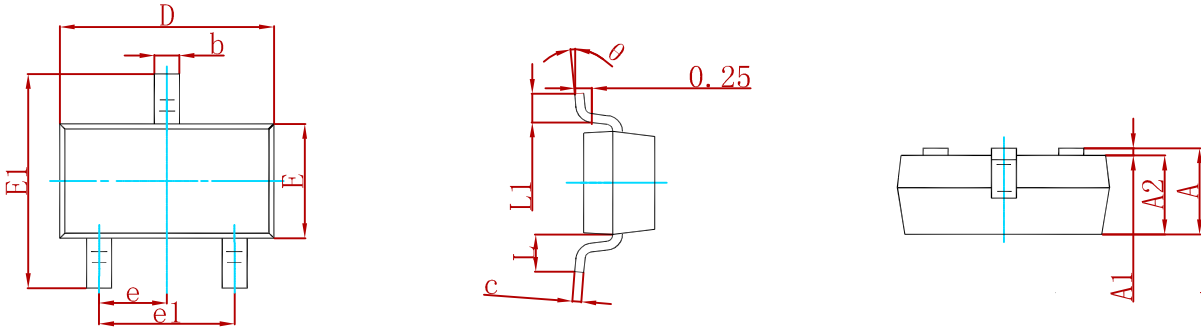


Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

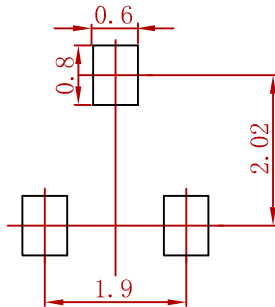
P/N	PKG	QTY
DTC114EKA	SOT-23-3L	3000

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
DTC114ECA	SOT-23	3000

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