

Parameter	Value
$V_{CC}$	50V
$I_{C(MAX.)}$	100mA
$R_1$	22k $\Omega$
$R_2$	22k $\Omega$

### ●Features

- 1) Built-In Biasing Resistors,  $R_1 = R_2 = 22k\Omega$
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit) .
- 3) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 4) Complementary PNP Types: DTA124E series

### ●Application

INVERTER, INTERFACE, DRIVER

### ●Inner circuit

DTC124EM/ DTC124EEB/ DTC124EUB

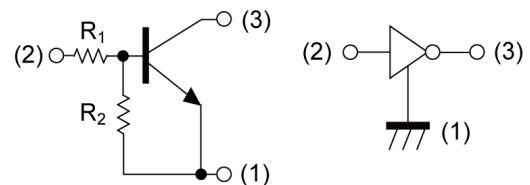


(1) IN (BASE)  
 (2) GND (EMITTER)  
 (3) OUT (COLLECTOR)

### ●Outline

SOT-723  DTC124EM (VMT3)	SOT-416FL  DTC124EEB (EMT3F)
SOT-416  DTC124EE (EMT3)	SOT-323FL  DTC124EUB (UMT3F)
SOT-323  DTC124EUA (UMT3)	SOT-346  DTC124EKA (SMT3)

DTC124EE/ DTC124EUA/ DTC124EKA



(1) GND (EMITTER)  
 (2) IN (BASE)  
 (3) OUT (COLLECTOR)

### ●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTC124EM	SOT-723	1212	T2L	180	8	8000	25
DTC124EEB	SOT-416FL	1616	TL	180	8	3000	25
DTC124EE	SOT-416	1616	TL	180	8	3000	25
DTC124EUB	SOT-323FL	2021	TL	180	8	3000	25
DTC124EUA	SOT-323	2021	T106	180	8	3000	25
DTC124EKA	SOT-346	2928	T146	180	8	3000	25

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

Parameter		Symbol	Values	Unit
Supply voltage		$V_{CC}$	50	V
Input voltage		$V_{IN}$	-10 to 40	V
Output current		$I_O$	30	mA
Collector current		$I_{C(MAX)}^{*1}$	100	mA
Power dissipation	DTC124EM	$P_D^{*2}$	150	mW
	DTC124EEB		150	
	DTC124EE		150	
	DTC124EUB		200	
	DTC124EUA		200	
	DTC124EKA		200	
Junction temperature		$T_j$	150	$^\circ\text{C}$
Range of storage temperature		$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = 5V, I_O = 100\mu\text{A}$	-	-	0.5	V
	$V_{I(on)}$	$V_O = 0.2V, I_O = 5\text{mA}$	3.0	-	-	
Output voltage	$V_{O(on)}$	$I_O = 10\text{mA}, I_I = 0.5\text{mA}$	-	100	300	mV
Input current	$I_I$	$V_I = 5V$	-	-	360	$\mu\text{A}$
Output current	$I_{O(off)}$	$V_{CC} = 50V, V_I = 0V$	-	-	500	nA
DC current gain	$G_I$	$V_O = 5V, I_O = 5\text{mA}$	56	-	-	-
Input resistance	$R_1$	-	15.4	22	28.6	k $\Omega$
Resistance ratio	$R_2/R_1$	-	0.8	1.0	1.2	-
Transition frequency	$f_T^{*1}$	$V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}$	-	250	-	MHz

\*1 Characteristics of built-in transistor

\*2 Each terminal mounted on a reference land.

●Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.1 Input voltage vs. output current (ON characteristics)



Fig.2 Output current vs. input voltage (OFF characteristics)



Fig.3 Output current vs. output voltage



Fig.4 DC current gain vs. output current



● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.5 Output voltage vs. output current



●Dimensions

SOT-723  
SC-105AA  
(VMT3)



Pattern of terminal position areas  
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
e	0.40		0.02	
HE	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	0.012
Lp	0.20	0.40	0.008	0.016
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.37	-	0.015
b3	-	0.47	-	0.019
e1	0.80		0.031	
I1	-	0.50	-	0.020

Dimension in mm/inches

●Dimensions

SOT-416FL  
SC-89  
( EMT3F )



Pattern of terminal position areas  
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.65	0.85	0.026	0.033
A1	0.00	0.10	0.000	0.004
A2	0.60	0.80	0.024	0.031
b	0.21	0.36	0.008	0.014
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	0.76	0.96	0.030	0.038
e	0.50		0.020	
HE	1.50	1.70	0.059	0.067
L	0.37		0.015	
Lp	0.35	0.55	0.014	0.022
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.46	-	0.018
e1	-	1.05	-	0.041
l1	-	0.65	-	0.026

Dimension in mm/inches

●Dimensions

SOT-416  
SC-75A  
(EMT3)



Pattern of terminal position areas  
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.60	0.80	0.024	0.031
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
e	0.50		0.020	
HE	1.40	1.80	0.055	0.071
L1	0.10	-	0.004	-
Lp	0.15	-	0.006	-
Q	0.05	0.25	0.002	0.010
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.40	-	0.016
b3	-	0.50	-	0.020
e1	1.10		0.043	
l1	-	0.70	-	0.028

Dimension in mm/inches

●Dimensions

SOT-323FL  
SC-85  
(UMT3F)



Pattern of terminal position areas  
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.85	1.05	0.033	0.041
A1	0.00	0.10	0.000	0.004
A2	0.80	1.00	0.031	0.039
b	0.27	0.42	0.011	0.017
c	0.08	0.18	0.003	0.007
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L	0.43		0.017	
Lp	0.43	0.63	0.017	0.025
x	-	0.10	-	0.004

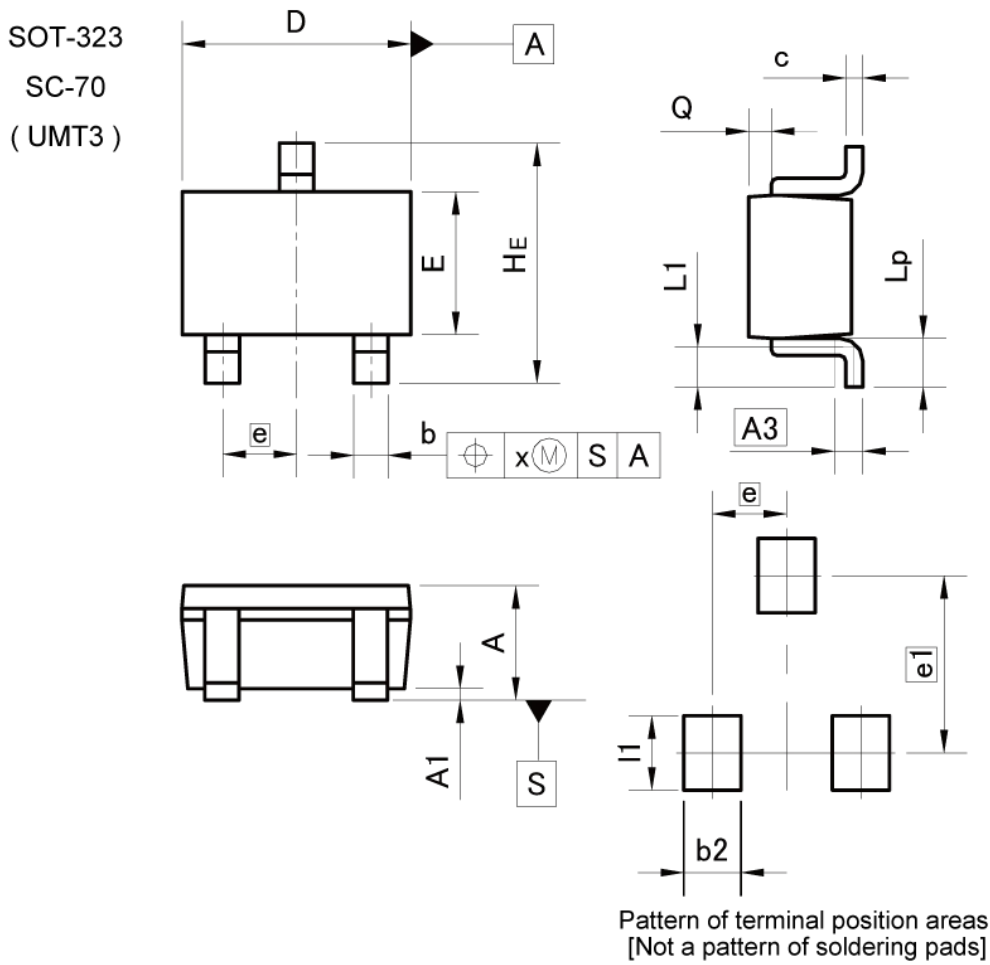
  

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.52	-	0.020
e1	1.47		0.058	
I1	-	0.83	-	0.033

Dimension in mm/inches



●Dimensions



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0	0.004
A3	0.25		0.01	
b	0.25	0.40	0.01	0.016
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.03	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.02
Lp	0.25	0.55	0.01	0.022
Q	0.10	0.30	0.004	0.012
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	1.55		0.06	
b2	-	0.50	-	0.02
l1	-	0.65	-	0.026

Dimension in mm/inches

●Dimensions



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.09	0.25	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.20	0.30	0.008	0.012
x	-	0.10	-	0.004
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.60	-	0.024
e1	2.10		0.083	
I1	-	0.90	-	0.035

Dimension in mm/inches

## Notes

No copying or reproduction of this document, in part or in whole, is permitted without the consent of ROHM Co.,Ltd.

The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing ROHM's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from ROHM upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, ROHM shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM and other parties. ROHM shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While ROHM always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). ROHM shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.



Thank you for your accessing to ROHM product informations.  
More detail product informations and catalogs are available, please contact us.

**ROHM Customer Support System**

<http://www.rohm.com/contact/>

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Bipolar Transistors - Pre-Biased](#) category:*

*Click to view products by [ROHM](#) manufacturer:*

Other Similar products are found below :

[RN1607\(TE85L,F\)](#) [DTA124GKAT146](#) [DTA144WETL](#) [DTA144WKAT146](#) [DTC113EET1G](#) [DTC115TETL](#) [DTC115TKAT146](#)  
[DTC124TETL](#) [DTC144ECA-TP](#) [DTC144VUAT106](#) [MUN5241T1G](#) [BCR158WH6327XTSA1](#) [NSBA114TDP6T5G](#) [NSBA143ZF3T5G](#)  
[NSBC114YF3T5G](#) [NSBC123TF3T5G](#) [SMUN5235T1G](#) [SMUN5330DW1T1G](#) [SSVMUN5312DW1T2G](#) [RN1303\(TE85L,F\)](#)  
[RN4605\(TE85L,F\)](#) [TTEPROTOTYPE79](#) [DDTC114EUAQ-7-F](#) [EMH15T2R](#) [SMUN2214T3G](#) [NSBC114TF3T5G](#) [NSBC143ZPDP6T5G](#)  
[NSVMUN5113DW1T3G](#) [SMUN5230DW1T1G](#) [SMUN5133T1G](#) [SMUN2214T1G](#) [DTC114EUA-TP](#) [NSBA144EF3T5G](#)  
[NSVDTA114EET1G](#) [2SC2223-T1B-A](#) [2SC3912-TB-E](#) [SMUN5237DW1T1G](#) [SMUN5213DW1T1G](#) [SMUN5114DW1T1G](#) [SMUN2111T1G](#)  
[NSVDTC144EM3T5G](#) [DTC124ECA-TP](#) [DTC123TM3T5G](#) [DTA114ECA-TP](#) [DTA113EM3T5G](#) [DCX115EK-7-F](#) [DTC113EM3T5G](#)  
[NSVMUN5135DW1T1G](#) [NSVMUN2237T1G](#) [NSVDTC143ZM3T5G](#)