

Voltage Detector

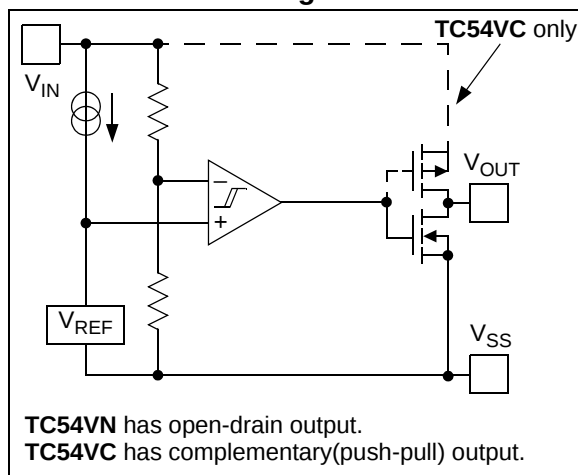
Features

- $\pm 2.0\%$ Detection Thresholds
- Small Packages: 3-Pin SOT-23A, 3-Pin SOT-89, and TO-92
- Low Current Drain: $1\ \mu\text{A}$ (Typical)
- Wide Detection Range: 1.1V to 6.0V
- Wide Operating Voltage Range: 0.7V to 10V

Applications

- Battery Voltage Monitoring
- Microprocessor Reset
- System Brown-Out Protection
- Switching Circuit in Battery Backup
- Level Discriminator

Functional Block Diagram

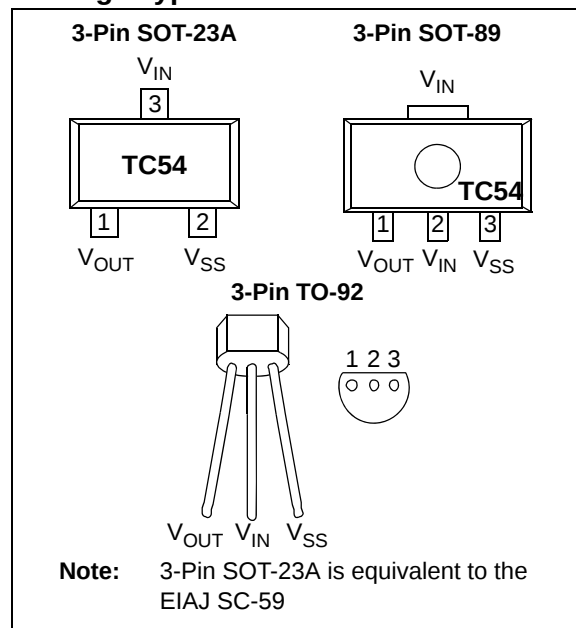


General Description

The TC54 series are CMOS voltage detectors that are especially well suited for battery-powered applications because of their extremely low $1\ \mu\text{A}$ operating current and small surface-mount packaging. Each part is laser-trimmed to the desired threshold voltage, which can be specified from 1.4V to 6.0V with a 2% tolerance.

The TC54 is available with either an open-drain or complementary output stage. During operation, the TC54's output (V_{OUT}) remains in the logic-high state as long as V_{IN} is greater than the specified threshold voltage (V_{DET}). When V_{IN} falls below V_{DET} , the output is driven to a logic-low. V_{OUT} remains low until V_{IN} rises above V_{DET} by an amount V_{HYST} , whereupon it resets to a logic-high.

Package Types



Device Features

Device	Output		Reset Delay	Std. Trip Points ⁽¹⁾ (typical)
	Type	State		
TC54VN	Open-Drain	Active Low	No	1.4V, 2.1V, 2.7V, 2.9V
TC54VC	Push-Pull	Active Low	No	3.0V, 4.2V, 4.3V

Note 1: Custom Trip Points available. Minimum order requirement. Information available upon request.

1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Input Voltage+12V
Output Current50 mA
Output Voltage: CMOS.....($V_{SS} - 0.3V$) to ($V_{IN} + 0.3V$)
Open-Drain.....($V_{SS} - 0.3V$) to 12V
Power Dissipation ($T_A \leq 70^\circ C$):
3-Pin SOT-23A240 mW
3-Pin SOT-89500 mW
5-Pin SOT-23A240 mW
3-Pin TO-92300 mW
Operating Temperature Range.....-40°C to +85°C
Storage Temperature Range-65°C to +150°C

† Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operation sections of the specifications is not implied. Exposure to Absolute Maximum Rating conditions for extended periods may affect device reliability.

DC CHARACTERISTICS

Electrical Specifications: Unless otherwise noted, $T_A = +25^\circ C$.						
Parameter	Sym	Min	Typ	Max	Units	Test Conditions
Operating Voltage	V_{IN}	0.7	—	10.0	V	$(V_{DET-}) \geq 1.6V$
		0.7	—	6.0	V	$(V_{DET-}) < 1.6V$
Quiescent Current	I_{SS}	—	0.8	2.7	μA	$V_{IN} = 2.0V$
		—	0.9	3.0		$V_{IN} = 3.0V$
		—	1.0	3.2		$V_{IN} = 4.0V$
		—	1.1	3.6		$V_{IN} = 5.0V$
Threshold Voltage (Note 1)	V_{DET-}	1.37	1.4	1.43	V	TC54VX14
		2.06	2.1	2.14		TC54VX21
		2.65	2.7	2.75		TC54VX27
		2.84	2.9	2.96		TC54VX29
		2.94	3.0	3.06		TC54VX30
		4.12	4.2	4.28		TC54VX42
		4.21	4.3	4.39		TC54VX43
Hysteresis Voltage	V_{HYST}	28	70	112	mV	$V_{DET} = 1.4V$ (typical)
		42	105	168		$V_{DET} = 2.1V$ (typical)
		54	135	216		$V_{DET} = 2.7V$ (typical)
		58	145	232		$V_{DET} = 2.9V$ (typical)
		60	150	240		$V_{DET} = 3.0V$ (typical)
		84	210	336		$V_{DET} = 4.2V$ (typical)
		86	215	344		$V_{DET} = 4.3V$ (typical)
Output Current	I_{OUT}	3.0	7.7	—	mA	$V_{OL} = 0.5V, V_{IN} = 2.0V$
		5.0	10.1	—		$V_{OL} = 0.5V, V_{IN} = 3.0V$
		6.0	11.5	—		$V_{OL} = 0.5V, V_{IN} = 4.0V$
		7.0	13.0	—		$V_{OL} = 0.5V, V_{IN} = 5.0V$
		—	-10.0	-2.0		TC54VC Only: $V_{OH} = V_{IN} - 2.1V, V_{IN} = 8.0V$
Tempco of (V_{DET-})	$T_C (V_{DET-})$	—	± 100	—	ppm/°C	$-40^\circ C \leq T_A \leq 85^\circ C$
Delay Time	t_{DLY}	—	—	0.2	ms	$V_{DET-} \rightarrow V_{OUT}$ inversion

Note 1: For other voltage options, please contact your regional Microchip sales office.

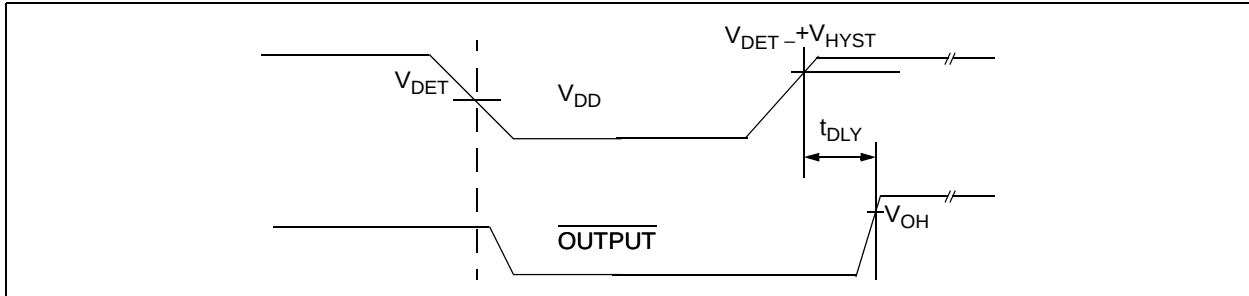


FIGURE 1-1: Timing Diagram.

2.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in [Table 2-1](#).

TABLE 2-1: PIN FUNCTION TABLE

Pin No. (3-Pin SOT-23A)	Pin No. (3-Pin SOT-89)	Pin No. (3-Pin TO-92)	Symbol	Description
1	1	1	V_{OUT}	Digital Output
3	2	2	V_{IN}	Analog Input
2	3	3	V_{SS}	Ground Terminal
—	Tab	—	V_{IN}	Analog Input

2.1 Digital Output (V_{OUT})

V_{OUT} goes low when V_{IN} drops below V_{DET-} and returns high when V_{IN} rises above $V_{DET-} + V_{HYST}$. (See [Figure 3-1](#)).

2.2 Analog Input (V_{IN})

V_{IN} can be used for power supply monitoring or a voltage level that requires monitoring.

2.3 Ground Terminal (V_{SS})

V_{SS} provides the negative reference for the analog input voltage. Typically, the circuit ground is used.

2.4 No Connect (NC)

No internal connection.

3.0 DETAILED DESCRIPTION

In normal steady-state operation when $V_{IN} > V_{DET-}$, the output will be at a logic-high (see Figure 3-1). In the case of the TC54VN, this is an open-drain condition. If the input falls below V_{DET-} , the output will pull down (Logic 0) to V_{SS} . Generally, V_{OUT} can pull down to within 0.5V of V_{SS} at rated output current and input voltage. (See Section 1.0 “Electrical Characteristics”).

The output (V_{OUT}) will stay valid until the input voltage falls below the minimum operating voltage (V_{INMIN}) of 0.7V. Below this minimum operating voltage the output is undefined. During power-up (or anytime V_{IN} has fallen below V_{INMIN}), V_{OUT} will remain undefined until V_{IN} rises above V_{INMIN} . Once this occurs, the output will become valid. V_{OUT} will be in its active-low state, while $V_{INMIN} < V_{IN} < V_{DET+}$ (therefore, $V_{DET+} = V_{DET-} + V_{HYST}$). If the input rises above V_{DET+} , the output will assume its inactive state (high for TC54VC, open-drain for TC54VN).

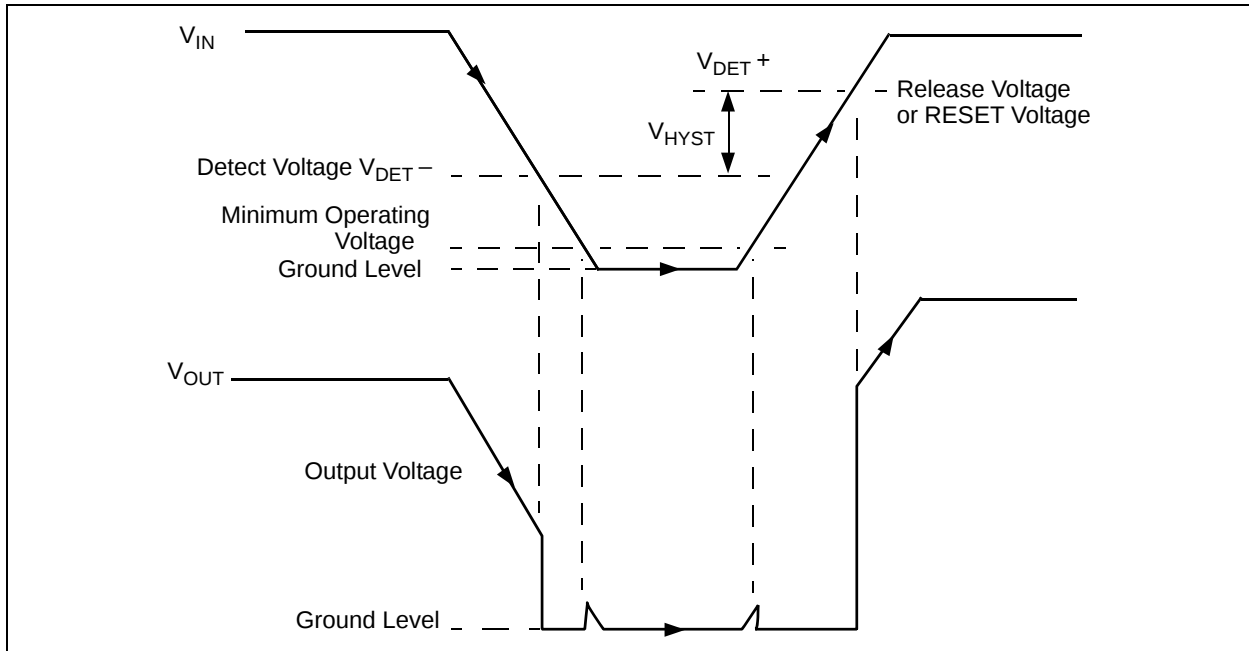


FIGURE 3-1: Timing Diagram.

4.0 APPLICATIONS INFORMATION

4.1 Modifying the Trip Point, V_{DET-}

Although the TC54 has a pre-programmed V_{DET-} , it is sometimes necessary to make adjustments during prototyping. This can be accomplished by connecting an external resistor divider to a TC54, which has a V_{DET-} lower than that of V_{SOURCE} (Figure 4-1).

To maintain detector accuracy, the bleeder current through the divider should be significantly higher than the 1 μA operating current required by the TC54. A reasonable value for this bleeder current is 100 μA (100 times the 1 μA required by the TC54). For example, if $V_{DET-} = 2V$ and the desired trip point is 2.5V, the value of $R_1 + R_2$ is 25 k Ω (2.5V/100 μA). The value of $R_1 + R_2$ can be rounded to the nearest standard value and plugged into the equation in Figure 4-1 to calculate values for R_1 and R_2 . 1% tolerance resistors are recommended.

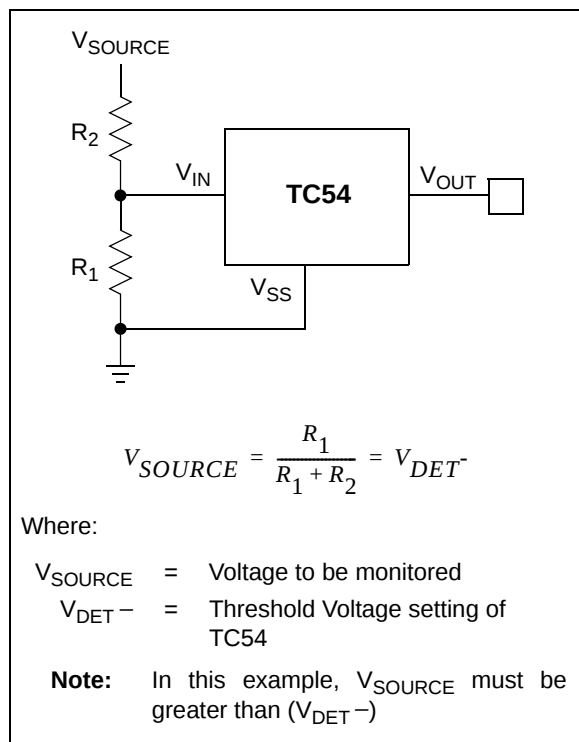


FIGURE 4-1: Modify Trip-point of the TC54 using External Resistor Divider.

4.2 Other Applications

Low operating power and small physical size make the TC54 series ideal for many voltage detector applications, such as those shown in Figures 4-2, 4-3 and 4-4. Figure 4-2 shows a low-voltage gate drive protection circuit that prevents overheating of the logic-level MOSFET due to insufficient gate voltage. When the input signal is below the threshold of the TC54VN, its output grounds the gate of the MOSFET. Figure 4-3 and Figure 4-4 show the TC54 in conventional voltage monitoring applications.

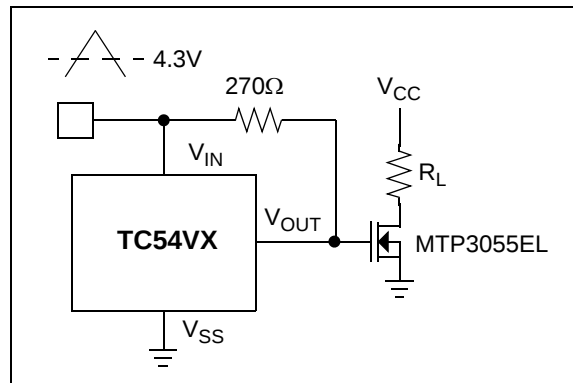


FIGURE 4-2: MOSFET Low Drive Protection.

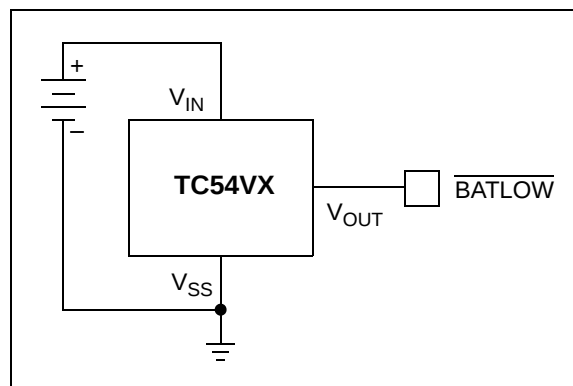


FIGURE 4-3: Battery Voltage Monitor.

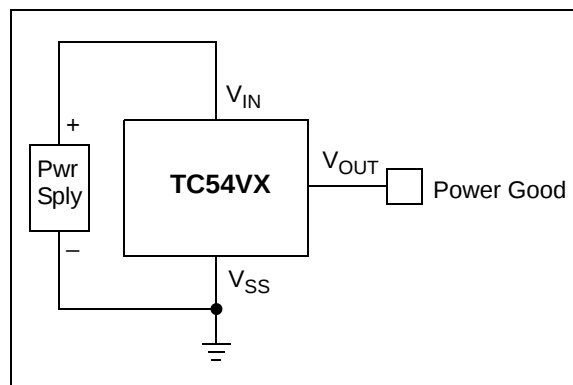
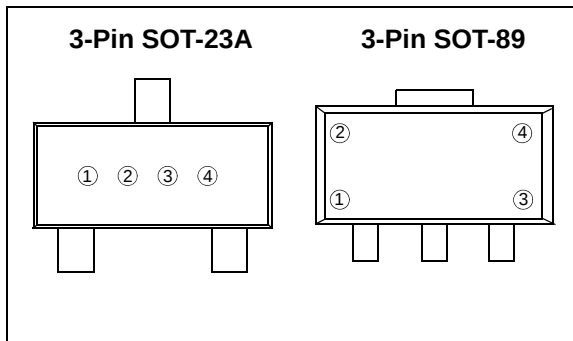


FIGURE 4-4: Power Good Monitor.

5.0 PACKAGING INFORMATION

5.1 Package Marking Information



① represents output configuration (CMOS or Nch) and first integer of voltage

Ex: CMOS 3.x = ① ○ ○ ○

Symbol	Output	Voltage
B	CMOS	1.
C	CMOS	2.
D	CMOS	3.
E	CMOS	4.
F	CMOS	5.
H	CMOS	6.
I	CMOS	7.

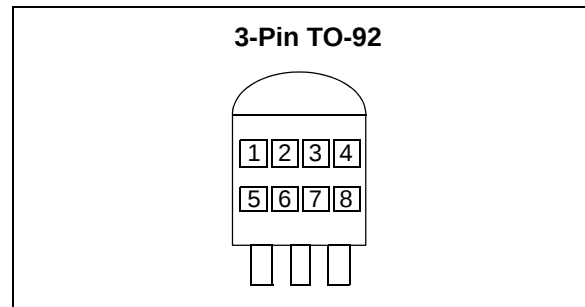
Symbol	Output	Voltage
L	Nch	1.
M	Nch	2.
N	Nch	3.
P	Nch	4.
R	Nch	5.
S	Nch	6.
T	Nch	7.

② represents first decimal of output voltage (0-9)

Ex: CMOS 3.x = ① ④ ○ ○

Symbol	Voltage	Symbol	Voltage
0	.0	6	.6
1	.1	7	.7
2	.2	8	.8
3	.3	9	.9
4	.4		
5	.5		

③ & ④ represents assembly lot code



①, ②, & ③ = 54X (fixed)

④ represents output configuration (CMOS or Nch)

Ex: CMOS 3.x = ④ ○ ○ ○

Symbol	Output
C	CMOS
N	N-Channel

⑤ represents first integer of detect voltage

Symbol	Voltage
2	2.
3	3.
4	4.
5	5.
6	6.

⑥ represents first decimal of detect voltage

Symbol	Voltage	Symbol	Voltage
0	.0	5	.5
1	.1	6	.6
2	.2	7	.7
3	.3	8	.8
4	.4	9	.9

⑦ represents the output Delay Time

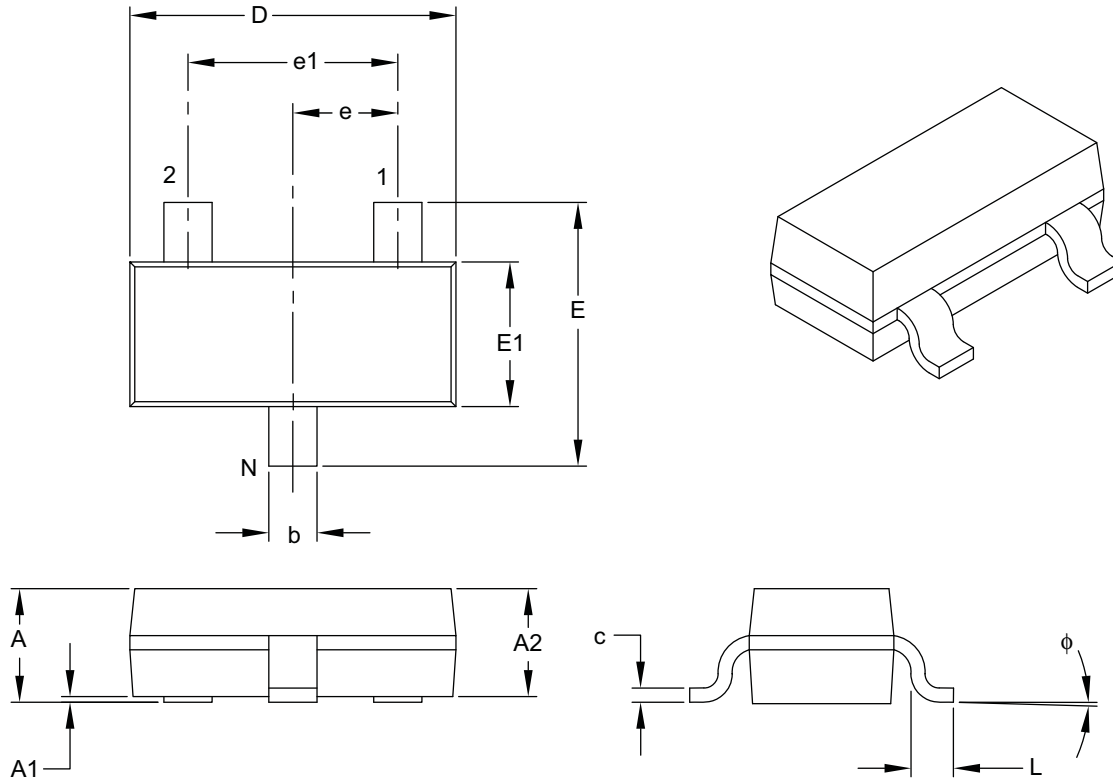
Symbol	Delay Time
0	No Delay

⑧ represents the device accuracy

Symbol	Accuracy
1	±1.0% (custom)
2	±2.0% (standard)

3-Lead Plastic Small Outline Transistor (CB) [SOT-23A]

Note: For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



Dimension Limits	Units	MILLIMETERS		
		MIN	NOM	MAX
Number of Pins	N	3		
Lead Pitch	e	0.95 BSC		
Outside Lead Pitch	e1	1.90 BSC		
Overall Height	A	0.89	—	1.45
Molded Package Thickness	A2	0.90	—	1.30
Standoff	A1	0.00	—	0.15
Overall Width	E	2.10	—	3.00
Molded Package Width	E1	1.20	—	1.80
Overall Length	D	2.70	—	3.10
Foot Length	L	0.15	—	0.60
Foot Angle	φ	0°	—	30°
Lead Thickness	c	0.09	—	0.26
Lead Width	b	0.30	—	0.51

Notes:

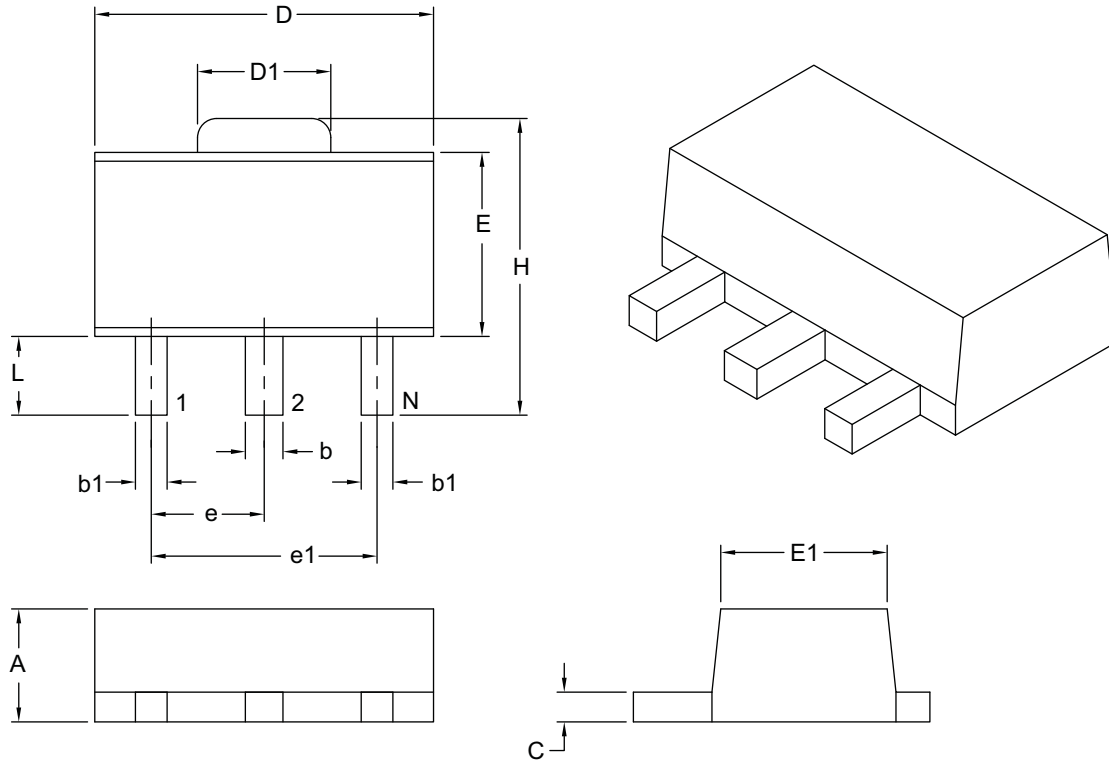
- Dimensions D and E1 do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.127 mm per side.
- Dimensioning and tolerancing per ASME Y14.5M.

BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-130B

3-Lead Plastic Small Outline Transistor Header (MB) [SOT-89]

Note: For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



Dimension Limits	Units	MILLIMETERS	
		MIN	MAX
Number of Leads	N	3	
Pitch	e	1.50 BSC	
Outside Lead Pitch	e1	3.00 BSC	
Overall Height	A	1.40	1.60
Overall Width	H	3.94	4.25
Molded Package Width at Base	E	2.29	2.60
Molded Package Width at Top	E1	2.13	2.29
Overall Length	D	4.39	4.60
Tab Length	D1	1.40	1.83
Foot Length	L	0.79	1.20
Lead Thickness	c	0.35	0.44
Lead 2 Width	b	0.41	0.56
Leads 1 & 3 Width	b1	0.36	0.48

Notes:

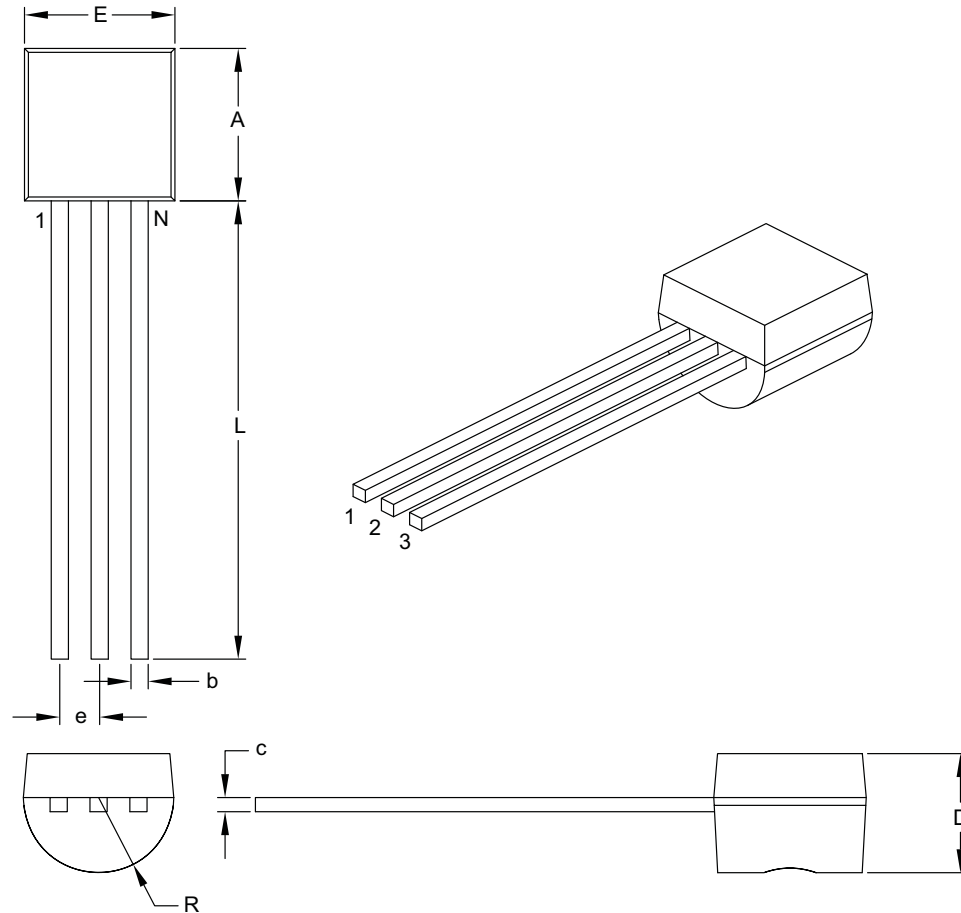
- Dimensions D and E do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.127 mm per side.
- Dimensioning and tolerancing per ASME Y14.5M.

BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-029B

3-Lead Plastic Transistor Outline (ZB) [TO-92]

Note: For the most current package drawings, please see the Microchip Packaging Specification located at <http://www.microchip.com/packaging>



		Units	INCHES	
Dimension Limits			MIN	MAX
Number of Pins	N		3	
Pitch	e		.050 BSC	
Bottom to Package Flat	D		.125	.165
Overall Width	E		.175	.205
Overall Length	A		.170	.210
Molded Package Radius	R		.080	.105
Tip to Seating Plane	L		.500	—
Lead Thickness	c		.014	.021
Lead Width	b		.014	.022

Notes:

- Dimensions A and E do not include mold flash or protrusions. Mold flash or protrusions shall not exceed .005" per side.
- Dimensioning and tolerancing per ASME Y14.5M.
BSC: Basic Dimension. Theoretically exact value shown without tolerances.

Microchip Technology Drawing C04-101B

APPENDIX A: REVISION HISTORY

Revision H (December 2007)

- Updated Features section.
- Removed 5-Pin SOT-23 related information.
- Updated Output Current (I_{OUT}) Electrical Specification.
- Removed 7.7V (typical) Voltage Trip Point Option. Max Trip Point Voltage is now 6.0V.
- Updated Pin Function Table.
- Updated Packaging Specification Information.
- Added Revision History section.
- Updated Product Identification System page.

Revision G (August 2004)

- Undocumented changes.

Revision F (July 2004)

- Undocumented changes.

Revision E (April 2003)

- Undocumented changes.

Revision D (October 2002)

- Undocumented changes.

Revision C (July 2002)

- Undocumented changes.

Revision B (May 2002)

- Undocumented changes.

Revision A (March 2001)

- Original Release of this Document.

TC54

NOTES:

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

<u>PART NO.</u>	X	XX	X	X	X	XX	XX
Device	Output Config.	Detected Voltage	Extra Feature Code	Tolerance	Temp.	Pkg	Taping Direction
Device: TC54V: Voltage Detector Output Configuration: N = Nch Open-Drain C = CMOS Output Detected Voltage: 14 = 1.4V 21 = 2.1V 27 = 2.7V 29 = 2.9V 30 = 3.0V 42 = 4.2V 43 = 4.3V Extra Feature Code: 0 = Fixed Tolerance: 2 = 2% Temperature: E = -40°C to +85°C Package: CB = Plastic Small Outline Transistor, SOT-23A, 3-lead, MB = Plastic Small Outline Transistor, SOT-89, 3-lead, ZB = Plastic Transistor Outline, TO-92, 3-lead Taping Direction: 713 = Standard Taping							
Examples: a) TC54VC1402ECB713: Tape and Reel, 1.4V Voltage Detector, 2% Tol., SOT-23A-3. b) TC54VC1402EMB713: Tape and Reel, 1.4V Voltage Detector, 2% Tol., SOT-89-3. c) TC54VC1402EZB: 1.4V Voltage Detector, 2% Tol., TO-92. d) TC54VC2102ECB713: Tape and Reel, 2.1V Voltage Detector, 2% Tol., SOT-23A-3. e) TC54VC2102EMB713: Tape and Reel, 2.1V Voltage Detector, 2% Tol., SOT-89-3. f) TC54VC2102EZB: 2.1V Voltage Detector, 2% Tol., TO-92. g) TC54VC2702ECB713: Tape and Reel, 2.7V Voltage Detector, 2% Tol., SOT-23A-3. h) TC54VC3002ECB713: Tape and Reel, 3.0V Voltage Detector, 2% Tol., SOT-23A-3. i) TC54VN4202ECB713: Tape and Reel, 4.2V Voltage Detector, 2% Tol., SOT-23A-3.							

TC54

NOTES:

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as "unbreakable."

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip's code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights.

Trademarks

The Microchip name and logo, the Microchip logo, Accuron, dsPIC, KEELOQ, KEELOQ logo, microID, MPLAB, PIC, PICmicro, PICSTART, PRO MATE, rPIC and SmartShunt are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

AmpLab, FilterLab, Linear Active Thermistor, Migratable Memory, MXDEV, MXLAB, SEEVAL, SmartSensor and The Embedded Control Solutions Company are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, Application Maestro, CodeGuard, dsPICDEM, dsPICDEM.net, dsPICworks, dsSPEAK, ECAN, ECONOMONITOR, FanSense, FlexROM, fuzzyLAB, In-Circuit Serial Programming, ICSP, ICEPIC, Mindi, MiWi, MPASM, MPLAB Certified logo, MPLIB, MPLINK, PICkit, PICDEM, PICDEM.net, PICLAB, PICtail, PowerCal, PowerInfo, PowerMate, PowerTool, REAL ICE, rFLAB, Select Mode, Smart Serial, SmartTel, Total Endurance, UNI/O, WiperLock and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

All other trademarks mentioned herein are property of their respective companies.

© 2007, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

 Printed on recycled paper.

QUALITY MANAGEMENT SYSTEM
CERTIFIED BY DNV
== ISO/TS 16949:2002 ==

Microchip received ISO/TS-16949:2002 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures are for its PIC® MCUs and dsPIC® DSCs, KEELOQ® code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.



WORLDWIDE SALES AND SERVICE

AMERICAS

Corporate Office

2355 West Chandler Blvd.
Chandler, AZ 85224-6199
Tel: 480-792-7200
Fax: 480-792-7277
Technical Support:
<http://support.microchip.com>
Web Address:
www.microchip.com

Atlanta

Duluth, GA
Tel: 678-957-9614
Fax: 678-957-1455

Boston

Westborough, MA
Tel: 774-760-0087
Fax: 774-760-0088

Chicago

Itasca, IL
Tel: 630-285-0071
Fax: 630-285-0075

Dallas

Addison, TX
Tel: 972-818-7423
Fax: 972-818-2924

Detroit

Farmington Hills, MI
Tel: 248-538-2250
Fax: 248-538-2260

Kokomo

Kokomo, IN
Tel: 765-864-8360
Fax: 765-864-8387

Los Angeles

Mission Viejo, CA
Tel: 949-462-9523
Fax: 949-462-9608

Santa Clara

Santa Clara, CA
Tel: 408-961-6444
Fax: 408-961-6445

Toronto

Mississauga, Ontario,
Canada
Tel: 905-673-0699
Fax: 905-673-6509

ASIA/PACIFIC

Asia Pacific Office

Suites 3707-14, 37th Floor
Tower 6, The Gateway
Harbour City, Kowloon
Hong Kong
Tel: 852-2401-1200
Fax: 852-2401-3431

Australia - Sydney

Tel: 61-2-9868-6733
Fax: 61-2-9868-6755

China - Beijing

Tel: 86-10-8528-2100
Fax: 86-10-8528-2104

China - Chengdu

Tel: 86-28-8665-5511
Fax: 86-28-8665-7889

China - Fuzhou

Tel: 86-591-8750-3506
Fax: 86-591-8750-3521

China - Hong Kong SAR

Tel: 852-2401-1200
Fax: 852-2401-3431

China - Nanjing

Tel: 86-25-8473-2460
Fax: 86-25-8473-2470

China - Qingdao

Tel: 86-532-8502-7355
Fax: 86-532-8502-7205

China - Shanghai

Tel: 86-21-5407-5533
Fax: 86-21-5407-5066

China - Shenyang

Tel: 86-24-2334-2829
Fax: 86-24-2334-2393

China - Shenzhen

Tel: 86-755-8203-2660
Fax: 86-755-8203-1760

China - Shunde

Tel: 86-757-2839-5507
Fax: 86-757-2839-5571

China - Wuhan

Tel: 86-27-5980-5300
Fax: 86-27-5980-5118

China - Xian

Tel: 86-29-8833-7252
Fax: 86-29-8833-7256

ASIA/PACIFIC

India - Bangalore

Tel: 91-80-4182-8400
Fax: 91-80-4182-8422

India - New Delhi

Tel: 91-11-4160-8631
Fax: 91-11-4160-8632

India - Pune

Tel: 91-20-2566-1512
Fax: 91-20-2566-1513

Japan - Yokohama

Tel: 81-45-471- 6166
Fax: 81-45-471-6122

Korea - Daegu

Tel: 82-53-744-4301
Fax: 82-53-744-4302

Korea - Seoul

Tel: 82-2-554-7200
Fax: 82-2-558-5932 or
82-2-558-5934

Malaysia - Kuala Lumpur

Tel: 60-3-6201-9857
Fax: 60-3-6201-9859

Malaysia - Penang

Tel: 60-4-227-8870
Fax: 60-4-227-4068

Philippines - Manila

Tel: 63-2-634-9065
Fax: 63-2-634-9069

Singapore

Tel: 65-6334-8870
Fax: 65-6334-8850

Taiwan - Hsin Chu

Tel: 886-3-572-9526
Fax: 886-3-572-6459

Taiwan - Kaohsiung

Tel: 886-7-536-4818
Fax: 886-7-536-4803

Taiwan - Taipei

Tel: 886-2-2500-6610
Fax: 886-2-2508-0102

Thailand - Bangkok

Tel: 66-2-694-1351
Fax: 66-2-694-1350

EUROPE

Austria - Wels

Tel: 43-7242-2244-39
Fax: 43-7242-2244-393

Denmark - Copenhagen

Tel: 45-4450-2828
Fax: 45-4485-2829

France - Paris

Tel: 33-1-69-53-63-20
Fax: 33-1-69-30-90-79

Germany - Munich

Tel: 49-89-627-144-0
Fax: 49-89-627-144-44

Italy - Milan

Tel: 39-0331-742611
Fax: 39-0331-466781

Netherlands - Drunen

Tel: 31-416-690399
Fax: 31-416-690340

Spain - Madrid

Tel: 34-91-708-08-90
Fax: 34-91-708-08-91

UK - Wokingham

Tel: 44-118-921-5869
Fax: 44-118-921-5820

10/05/07



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.