

Features

- Quiescent Current: 4.2uA@12V
- PSRR:60dB@100Hz
- Voltage drop:600mV@100mA
- ESD HBM:8KV
- High input voltage (up to 40V)
- Output voltage accuracy: tolerance $\pm 2\%$
- Output current:100mA(Typ.)
- TO92,SOT89 and SOT23-3 package

Applications

- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

General Description

The H75XX-H# series is a set of three-terminal low power high voltage regulators implemented in CMOS technology. They allow input voltages as high as 40V. They are available with several fixed output voltages ranging from 1.8V to 5.0V. CMOS technology ensures low voltage drop and low quiescent current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

Selection Table

| Part No. | Output Voltage | Package | Marking |
|----------|----------------|--------------------------|---|
| H7525-H# | 2.5V | TO92 SOT89 SOT23-3 | 75XX-H#(for TO92) 75XX-H#(for SOT89) XXH(for SOT23-3) |
| H7527-H# | 2.7V | | |
| H7528-H# | 2.8V | | |
| H7530-H# | 3.0V | | |
| H7533-H# | 3.3V | | |
| H7536-H# | 3.6V | | |
| H7540-H# | 4.0V | | |
| H7544-H# | 4.4V | | |
| H7550-H# | 5.0V | | |

Note: "XX" stands for output voltages. Other voltages can be specially customized.

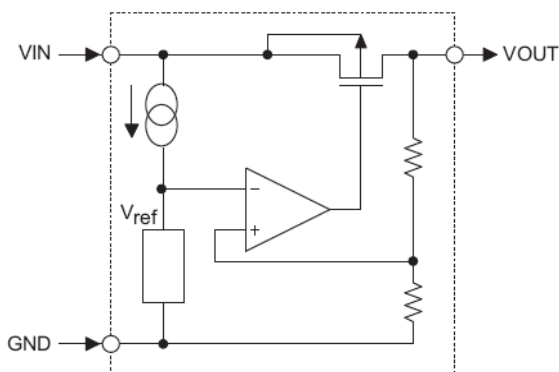
TO92 & SOT89 packages will add a "#" mark at the end of the marking.

Order Information

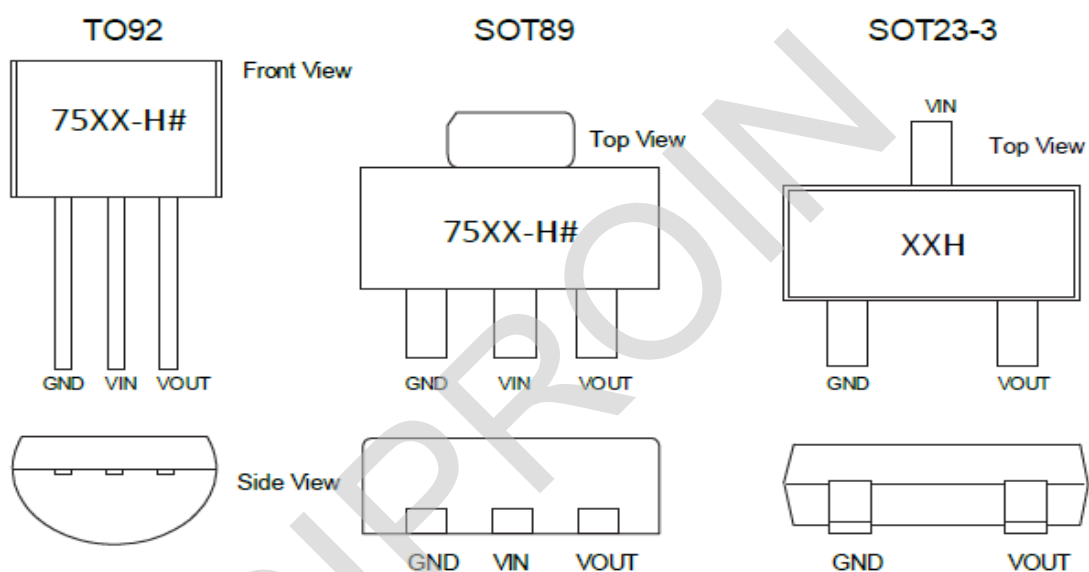
H75①②③④⑤

| Designator | Symbol | Description |
|------------|---------|--------------------------|
| ① ② | Integer | Output Voltage(1.8~5.0V) |
| ③ | -H# | Standard |
| ④ | T | Package:TO-92 |
| | P | Package:SOT89 |
| | M | Package:SOT23-3 |
| ⑤ | R | RoHS / Pb Free |
| | G | Halogen Free |

Block Diagram



Pin Assignment



Absolute Maximum Ratings

Supply Voltage-0.3V to 45V Storage Temperature-50°C to 125°C
 Operating Temperature-40°C to 85°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Thermal Information

| Symbol | Parameter | Package | Max. | Unit |
|---------------|--|---------|------|------|
| θ_{JA} | Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink) | TO92 | 200 | °C/W |
| | | SOT89 | 200 | °C/W |
| | | SOT23 | 500 | °C/W |
| P_D | Power Dissipation | TO92 | 0.50 | W |
| | | SOT89 | 0.50 | W |
| | | SOT23 | 0.20 | W |

Note: P_D is measured at $T_a = 25^\circ\text{C}$

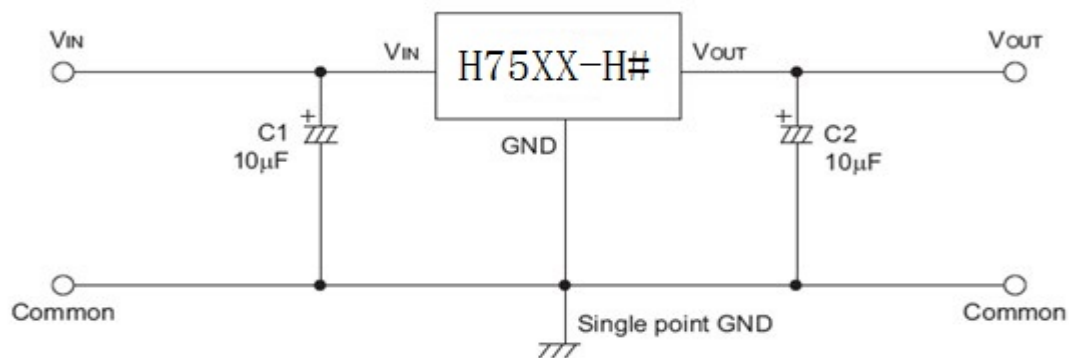
Electrical Characteristics

The following specifications apply for $V_{IN} = 12V$, $T_A = 25^\circ C$, $C_{IN} = C_{OUT} = 10\mu F$, unless specified otherwise.

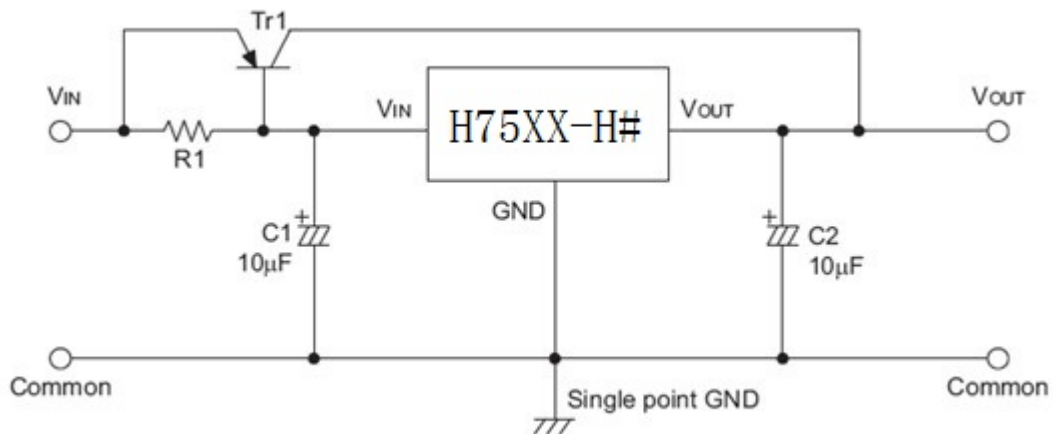
| SYMBOL | ITEMS | CONDITIONS | MIN | TYP | MAX | UNIT |
|-------------------------|-----------------------------|--|-----------------------|-----------|-----------------------|-----------------|
| V_{IN} | Input Range | $I_{OUT} = 10mA$ | 4.75 | | 40 | V |
| V_{OUT} | Output Range | $I_{OUT} = 10mA$ | $V_{OUT} \times 0.98$ | V_{OUT} | $V_{OUT} \times 1.02$ | V |
| ΔV_{OUT} | Output Voltage | $V_{IN} = 12V, I_{OUT} = 10mA$ | 4.9 | 5 | 5.1 | V |
| | | | 3.234 | 3.3 | 3.366 | |
| | | | 2.94 | 3.0 | 3.06 | |
| I_Q | Quiescent Current | $V_{IN} = 7V, I_{OUT} = 0$ | | 4 | 6 | μA |
| | | $V_{IN} = 24V, I_{OUT} = 0$ | | 4.6 | 6.7 | |
| | | $V_{IN} = 40V, I_{OUT} = 0$ | | 5.4 | 8.2 | |
| I_{OUT_PK} | Maximum Output Current | $V_{IN} = 12V, R_L = 1\Omega$ | | 190 | | m |
| V_{DROP} | Dropout Voltage | $I_{OUT} = 10mA$ | | 60 | 90 | mV |
| | | $I_{OUT} = 100mA$ | | 600 | 900 | |
| ΔV_{LINE} | Line Regulation | $V_{IN} = 7 \sim 24V, V_{OUT} = 5V, I_{OUT} = 1mA$ | | 0.02 | 0.03 | % / V |
| | | $V_{IN} = 7 \sim 45V, V_{OUT} = 5V, I_{OUT} = 1mA$ | | 0.08 | 0.1 | |
| ΔV_{LOAD} | Load Regulation | $V_{IN} = 7V, I_{OUT} = 1 \sim 100mA$ | | 19 | 37 | m |
| I_{SHORT} | Short Current | V_{OUT} Short to GND with 1Ω (1ms pulse), $V_{IN} = 40V$ | | 180 | | mA |
| PSRR | Power Supply Rejection Rate | $V_{IN} = 10V,$ $V_{PP} = 0.5V,$ $I_{OUT} = 1mA$ | $F = 100Hz$ | | 60 | dB |
| | | | $F = 1kHz$ | | 50 | |
| | | | $F = 10kHz$ | | 40 | |
| e_{NO} | Output Noise Voltage | 10Hz to 100kHz, $C_{OUT} = 10\mu F,$ $I_{OUT} = 10mA$ | | ± 100 | | μV_{RMS} |
| T_{SD} | Thermal Shutdown Protection | | | 165 | | $^\circ C$ |
| $\Delta V_O / \Delta T$ | Temperature Coefficient | $V_{IN} = 12V, I_{OUT} = 1mA$ | | ± 0.5 | | $mV / ^\circ C$ |

Application Circuits

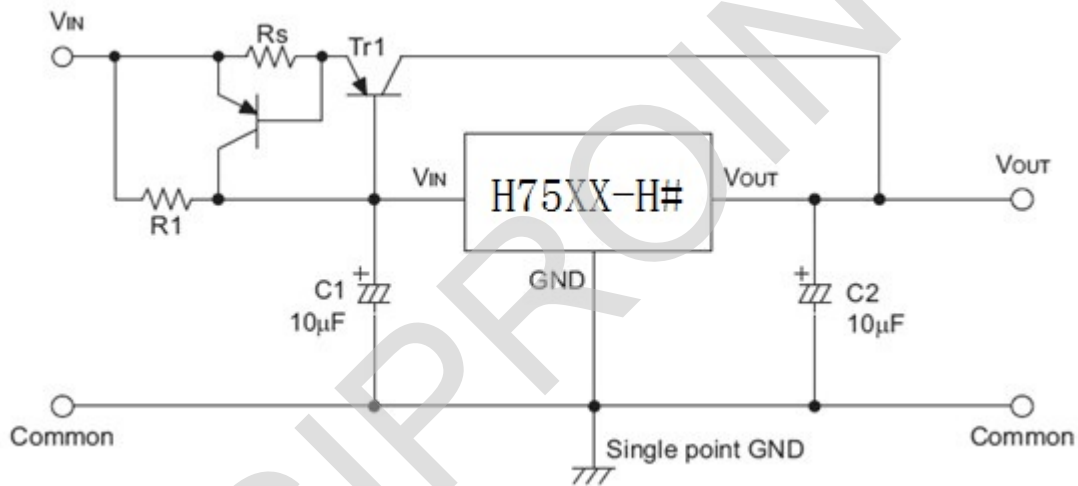
Basic Circuits



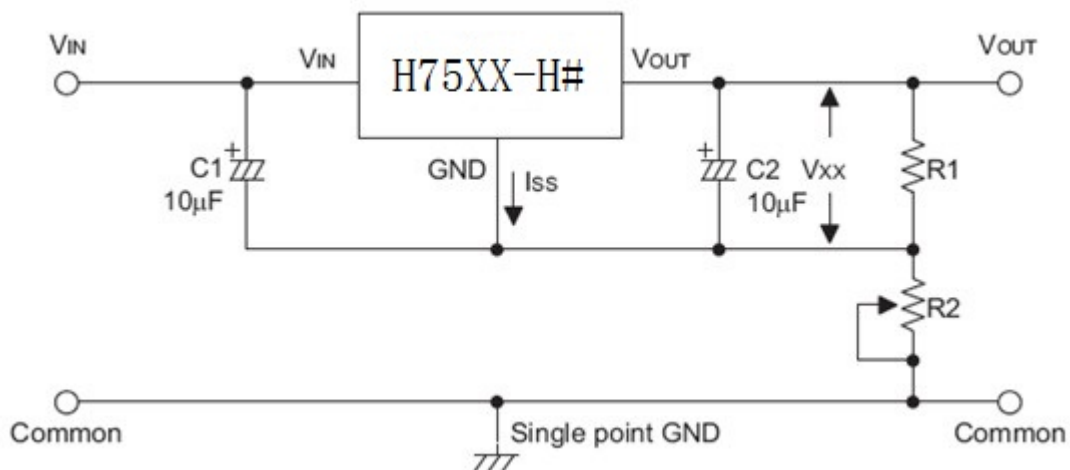
High Output Current Positive Voltage Regulator



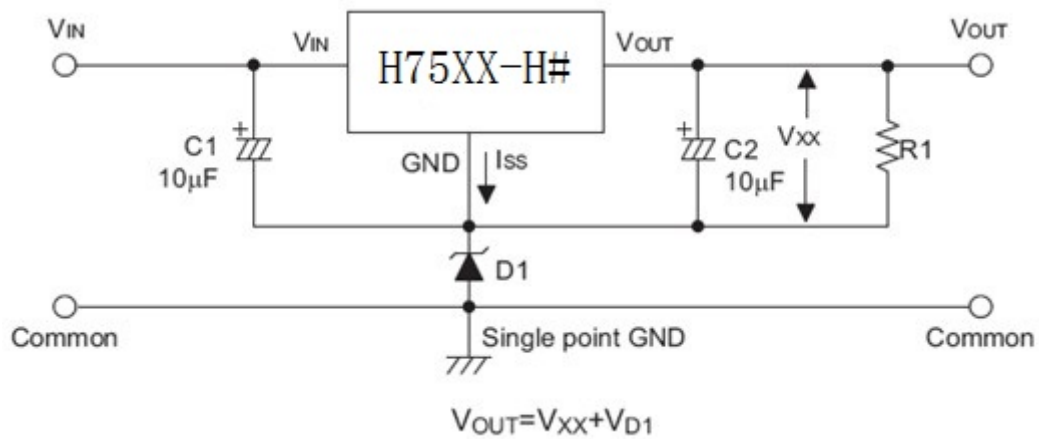
Short-Circuit Protection by $Tr1$



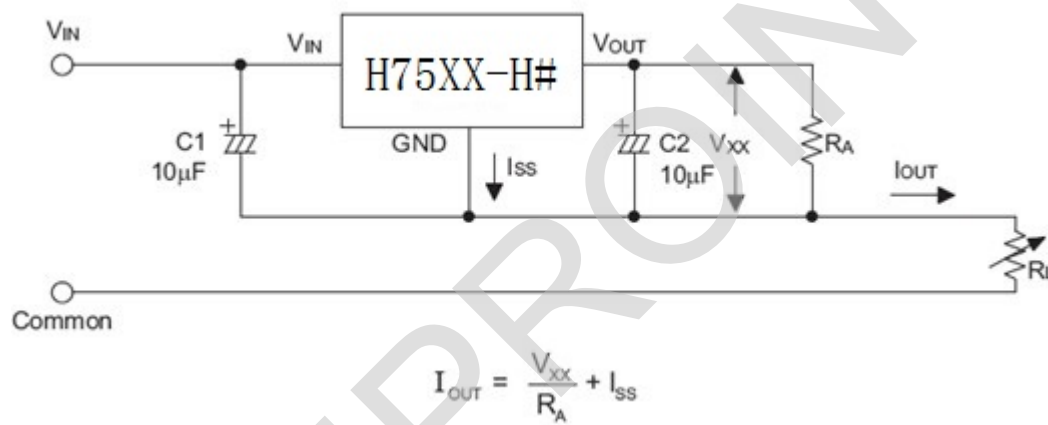
Circuit for Increasing Output Voltage



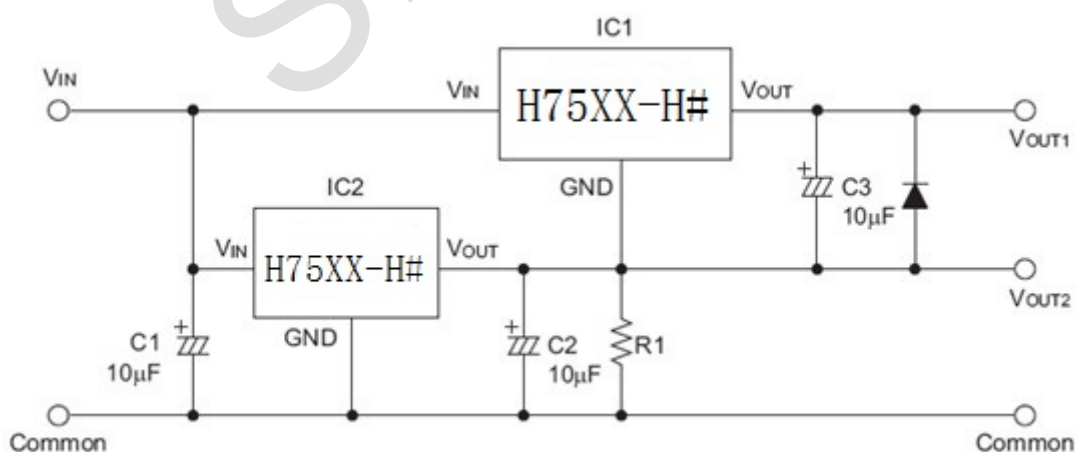
Circuit for Increasing Output Voltage



Constant Current Regulator

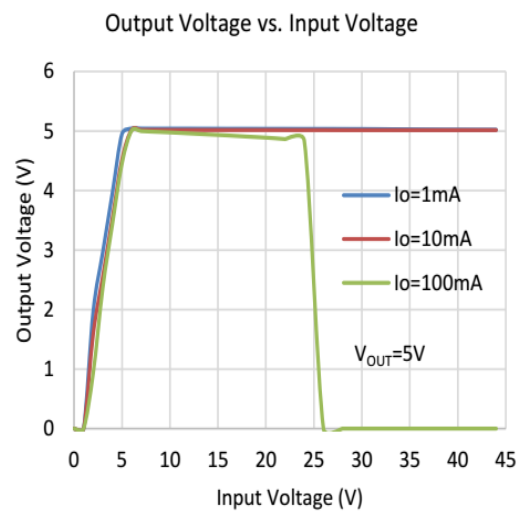
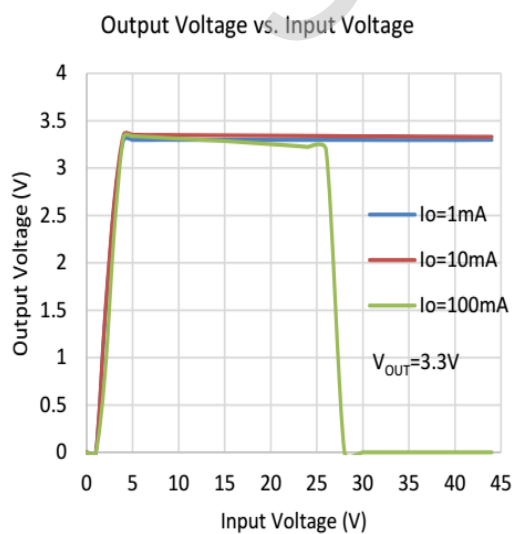
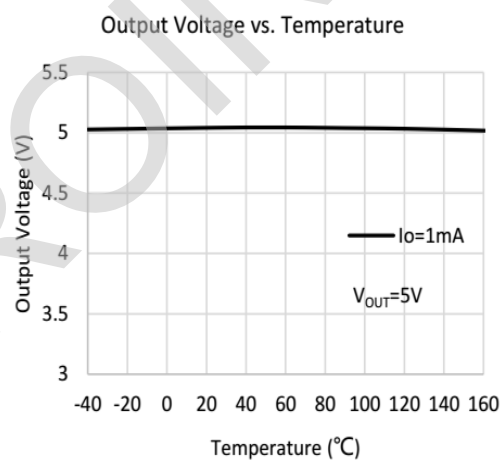
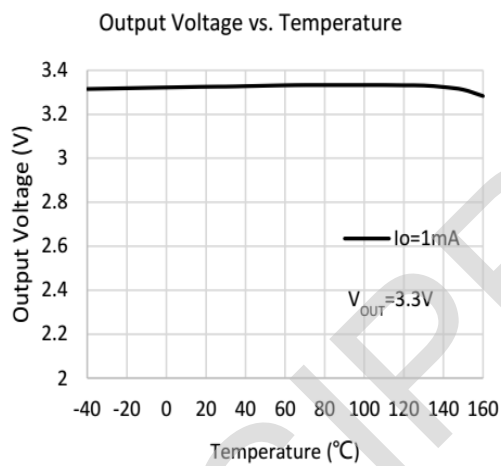
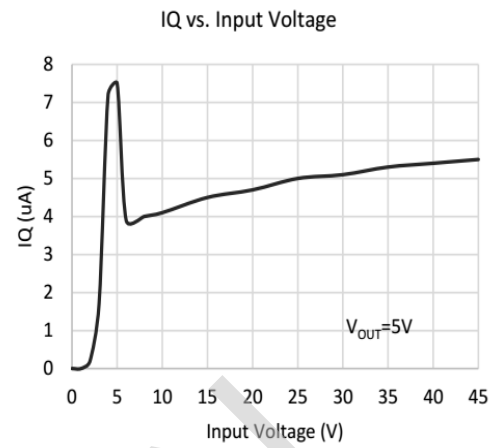
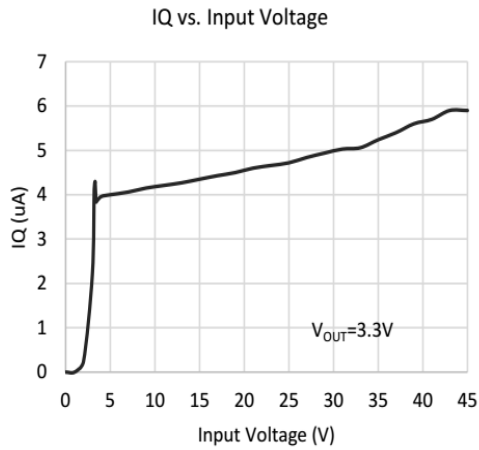


Dual Supply

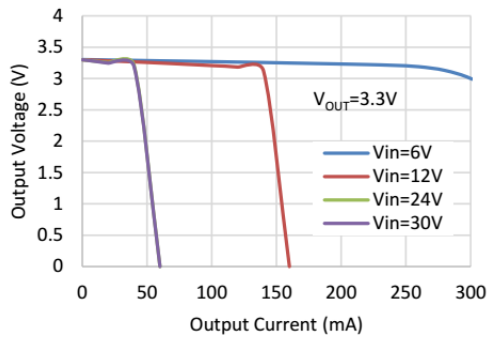


Typical Performance Characteristics

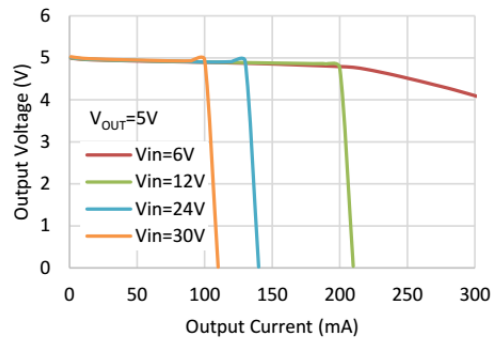
$C_{IN} = 10\mu F$, $C_{OUT} = 10\mu F$, $T_{OPT} = 25^\circ C$, unless specified otherwise. (Package: SOT89-3L)



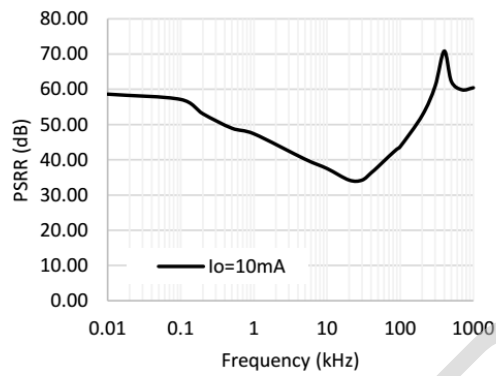
Output Voltage vs. Output Current



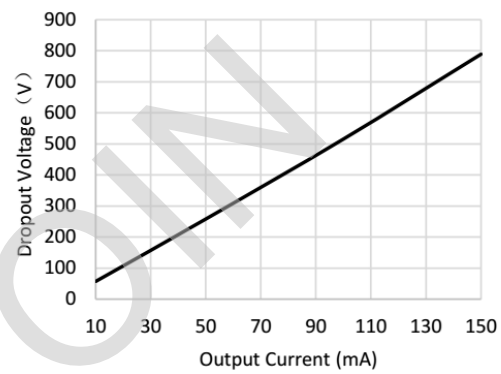
Output Voltage vs. Output Current



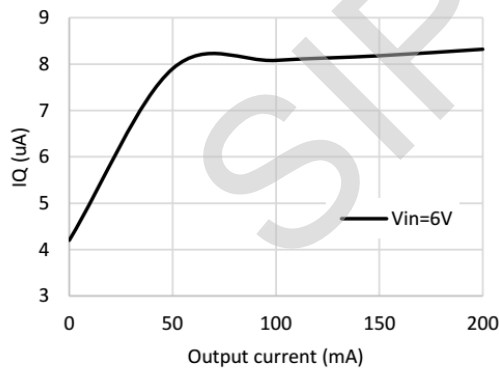
PSRR vs. Frequency



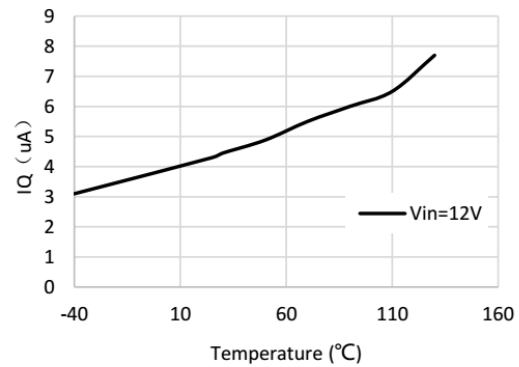
Dropout Voltage vs. Output Current



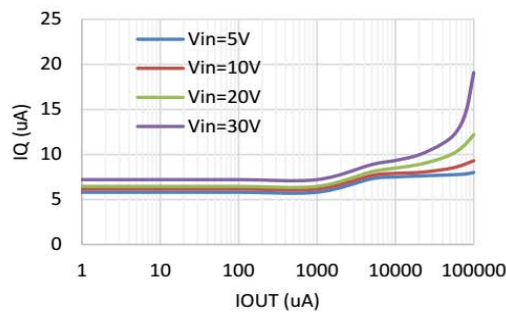
IQ vs. Output current



IQ vs. Temperature



IQ vs. IOU



Power ON/OFF

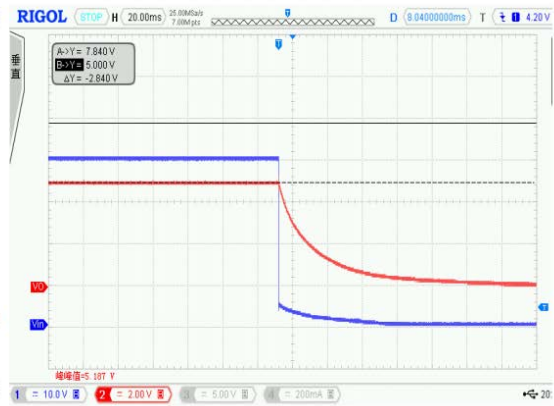
CH1: V_{IN}

CH2: V_{OUT}

$V_{IN}=40V$

$I_{OUT}=1mA$

$V_{OUT}=5V$



Line Transient

CH1: V_{IN}

CH2: V_{OUT}

$V_{IN}=6V-12V$

$I_{OUT}=1mA$

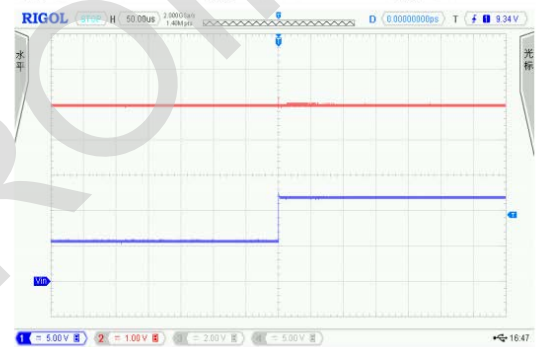
$V_{OUT}=5V$



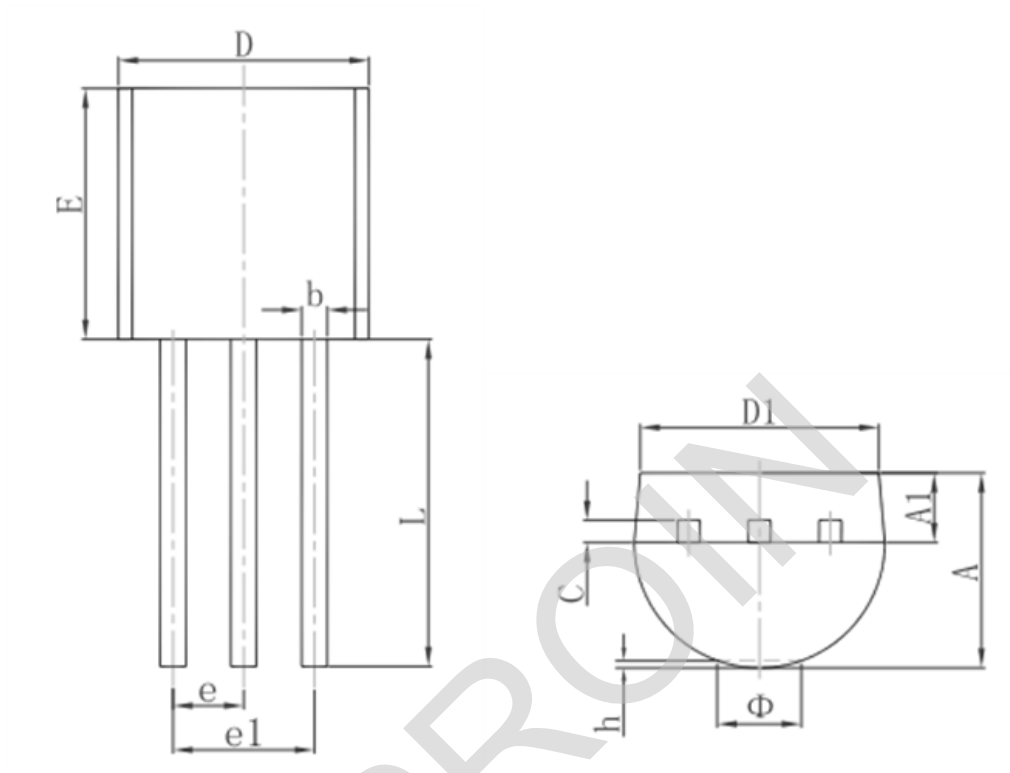
$V_{IN}=6V-12V$

$I_{OUT}=10mA$

$V_{OUT}=5V$

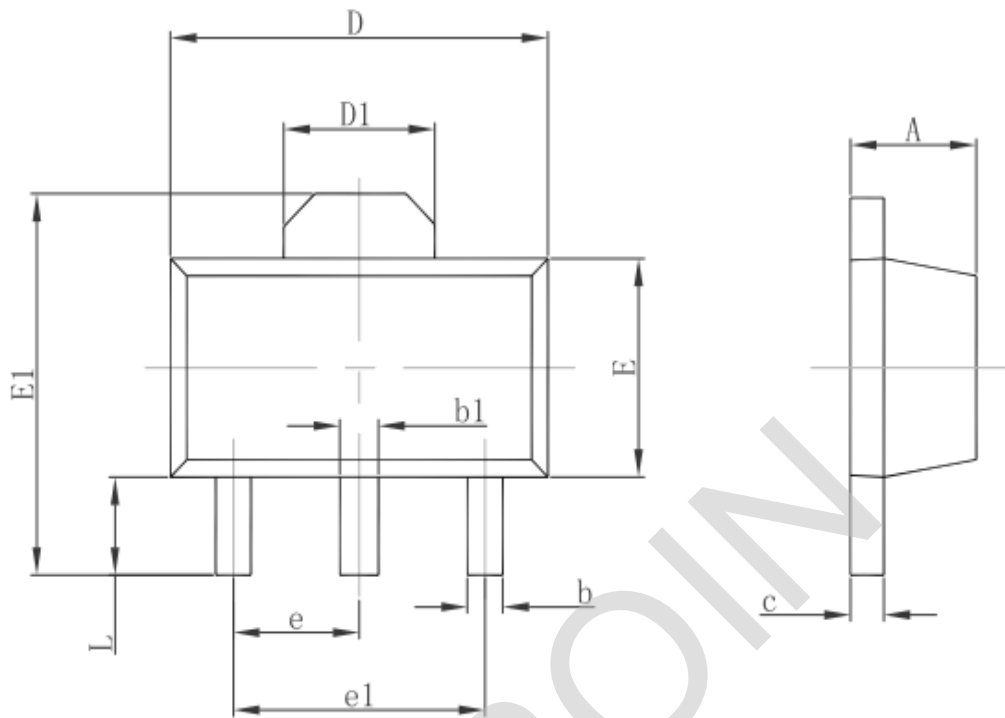


Package Information
3-pin TO92 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 3.300 | 3.700 | 0.130 | 0.146 |
| A1 | 1.100 | 1.400 | 0.043 | 0.055 |
| b | 0.380 | 0.550 | 0.015 | 0.022 |
| c | 0.360 | 0.510 | 0.014 | 0.020 |
| D | 4.300 | 4.700 | 0.169 | 0.185 |
| D1 | 3.430 | | 0.135 | |
| E | 4.300 | 4.700 | 0.169 | 0.185 |
| e | 1.270 TYP. | | 0.050 TYP. | |
| e1 | 2.440 | 2.640 | 0.096 | 0.104 |
| L | 14.100 | 14.500 | 0.555 | 0.571 |
| Phi | | 1.600 | | 0.063 |
| h | 0.000 | 0.380 | 0.000 | 0.015 |

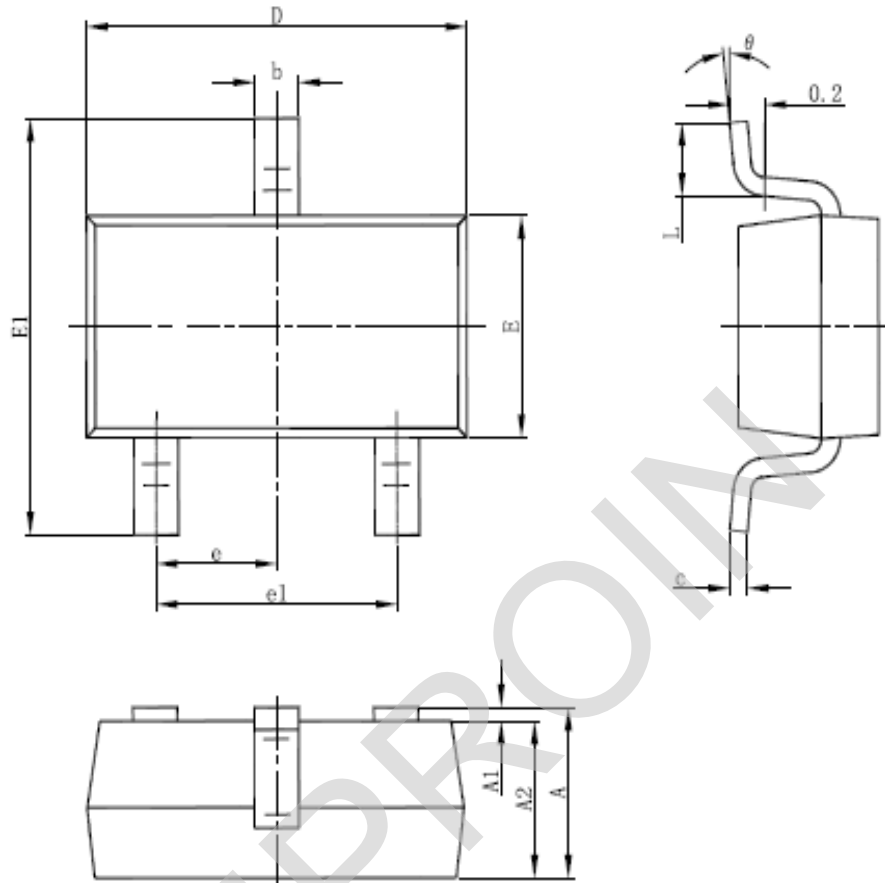
3-pin SOT89 Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.400 | 1.600 | 0.055 | 0.063 |
| b | 0.320 | 0.520 | 0.013 | 0.020 |
| b1 | 0.400 | 0.580 | 0.016 | 0.023 |
| c | 0.350 | 0.440 | 0.014 | 0.017 |
| D | 4.400 | 4.600 | 0.173 | 0.181 |
| D1 | 1.550 REF. | | 0.061 REF. | |
| E | 2.300 | 2.600 | 0.091 | 0.102 |
| E1 | 3.940 | 4.250 | 0.155 | 0.167 |
| e | 1.500 TYP. | | 0.060 TYP. | |
| e1 | 3.000 TYP. | | 0.118 TYP. | |
| L | 0.900 | 1.200 | 0.035 | 0.047 |

3-pin SOT23-3 Outline Dimensions

SOT-23-3L PACKAGE OUTLINE DIMENSIONS



| 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 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 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° |

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [LDO Voltage Regulators](#) category:

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

Other Similar products are found below :

[AP7363-SP-13](#) [L79M05TL-E](#) [AP7362-HA-7](#) [PT7M8202B12TA5EX](#) [TCR3DF185,LM\(CT](#) [TCR3DF45,LM\(CT](#) [TLE4473G V52](#)
[NCP4687DH15T1G](#) [701326R](#) [NCV8170AXV250T2G](#) [AP7315-25W5-7](#) [AP2111H-1.2TRG1](#) [ZLDO1117QK50TC](#) [AZ1117ID-ADJTRG1](#)
[TCR3DG12,LF](#) [MIC5514-3.3YMT-T5](#) [SCD7912BTG](#) [NCP154MX180270TAG](#) [SCD33269T-5.0G](#) [NCV8170BXV330T2G](#)
[NCP706ABMX300TAG](#) [NCP114BMX075TCG](#) [MC33269T-3.5G](#) [TCR3DG33,LF](#) [TLE4471GXT](#) [TCR4DG35,LF](#) [TAR5S15U\(TE85L,F\)](#)
[TCR3UG19A,LF](#) [TCR4DG105,LF](#) [MPQ2013AGG-5-P](#) [AP7315-33SA-7](#) [TLE4268GSXUMA2](#) [NCP715SQ15T2G](#) [MIC5317-3.0YD5-T5](#)
[NCV563SQ18T1G](#) [NCP715MX30TBG](#) [NCV8702MX25TCG](#) [MIC5317-1.2YD5-T5](#) [AP2213D-3.3TRG1](#) [NCV8170BMX120TCG](#)
[NCV8170BMX310TCG](#) [MIC5514-1.2YMT-T5](#) [NCV8170BMX280TCG](#) [AP2202K-2.6TRE1](#) [NCV8170AXV120T2G](#)
[NCV8170BMX300TCG](#) [NCV8152MX300180TCG](#) [NCP700CMT45TBG](#) [AP7315-33W5-7](#) [NCV87722DT50RKG](#)