

1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

General Description

The AS78XXA series are three terminal positive voltage regulators designed for a wide variety of applications including local, on-card regulation.

The AS78XXA are complete with internal current limiting, thermal shutdown protection, and safe-area compensation which make them virtually immune from output overload. If adequate heat sinking are provided, these regulators can deliver output currents up to 1A.

The AS78XXA are available in TO-252-2 (1), TO-252-2 (3), TO-252-2 (4), TO-220-3 and TO-220F-3 packages.

Features

- Output Current up to 1A
- Fixed Output Voltages of 5V, 6V, 8V, 9V, 12V, 15V and 18V
- Output Voltage Accuracy of $\pm 4\%$ over the Full Temperature Range
- Internal Short Circuit Current Limiting
- Internal Thermal Overload Protection
- Output Transistor Safe-area Protection
- Low Load Regulation
- Stable Performance in High Temperature

Applications

- High Efficiency Linear Regulator
- Post Regulation for Switching Supply
- Microprocessor Power Supply
- Mother Board

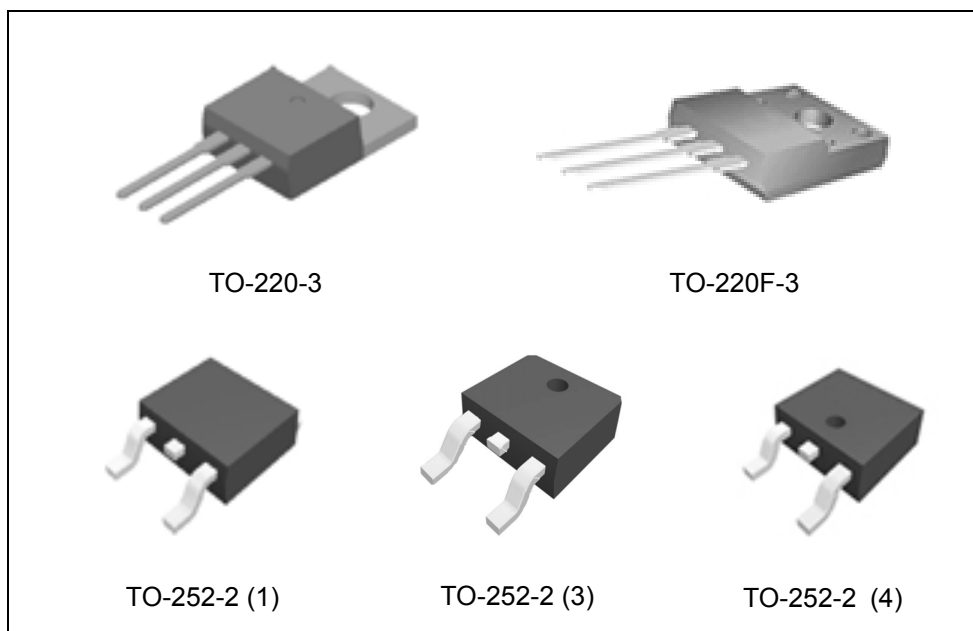


Figure 1. Package Types of AS78XXA

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Pin Configuration

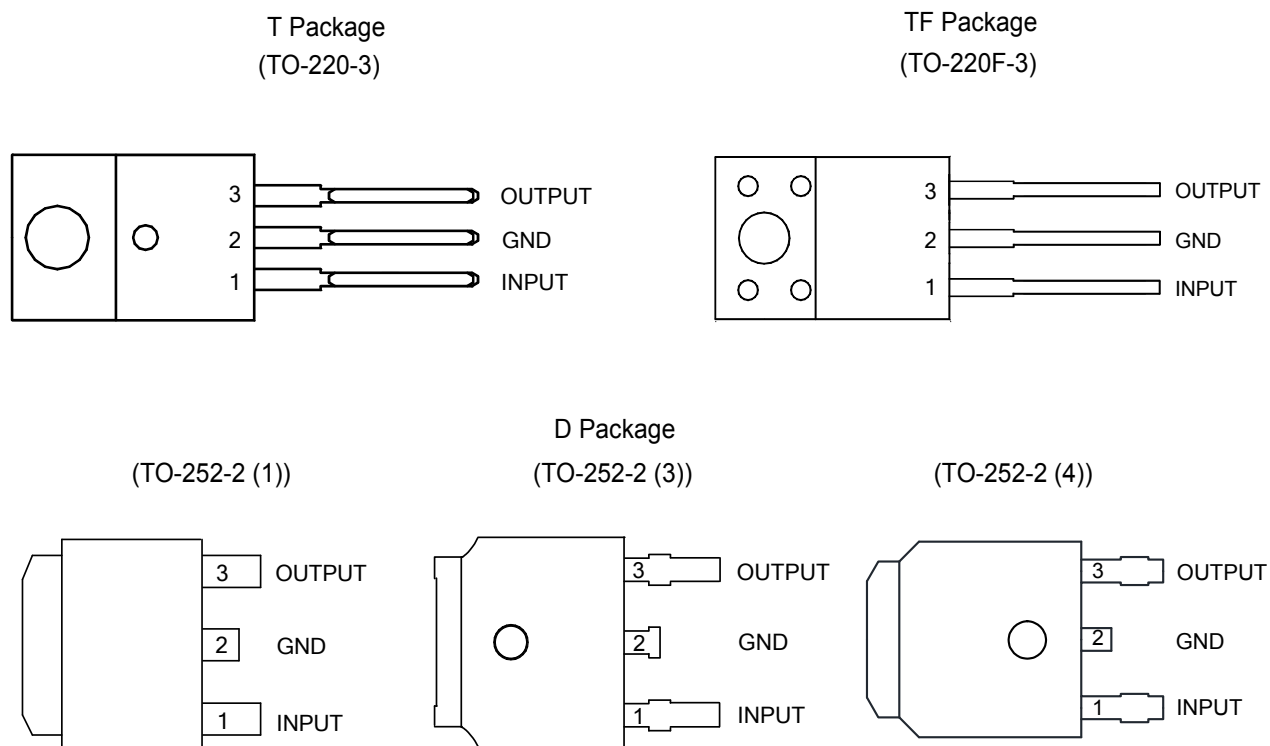


Figure 2. Pin Configuration of AS78XXA (Top View)

Pin Description

| Pin Number | Pin Name | Function |
|------------|----------|----------------|
| 1 | INPUT | Voltage Input |
| 2 | GND | Ground |
| 3 | OUTPUT | Voltage Output |

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Functional Block Diagram

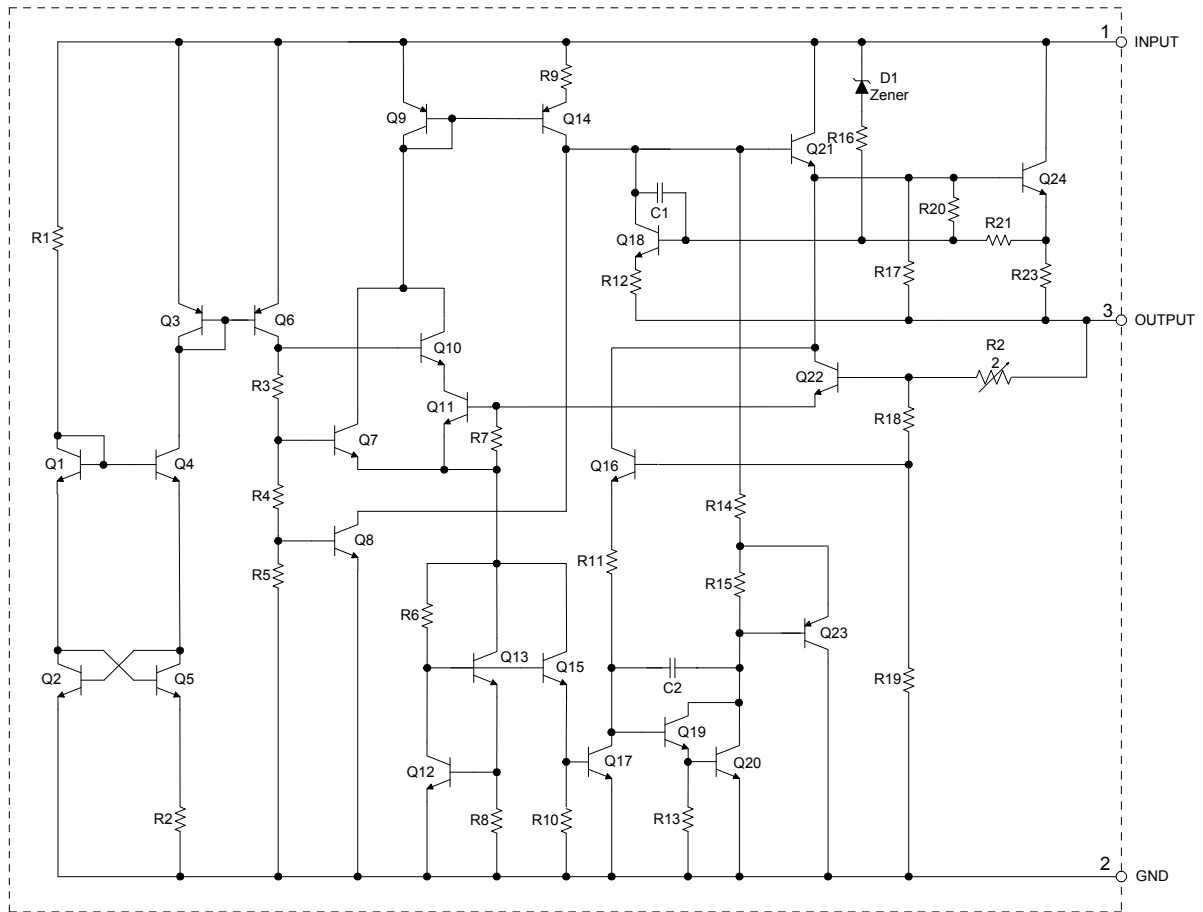


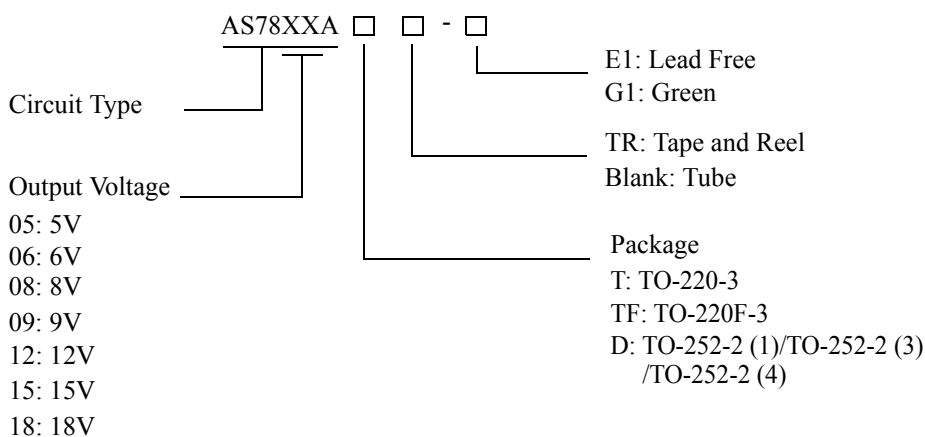
Figure 3. Functional Block Diagram of AS78XXA



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Ordering Information



| Package | Temperature Range | Part Number | | Marking ID | | Packing Type |
|-----------|-------------------|--------------|--------------|--------------|--------------|--------------|
| | | Lead Free | Green | Lead Free | Green | |
| TO-220-3 | -40 to 125°C | AS7805AT-E1 | AS7805AT-G1 | AS7805AT-E1 | AS7805AT-G1 | Tube |
| | | AS7806AT-E1 | AS7806AT-G1 | AS7806AT-E1 | AS7806AT-G1 | Tube |
| | | AS7808AT-E1 | AS7808AT-G1 | AS7808AT-E1 | AS7808AT-G1 | Tube |
| | | AS7809AT-E1 | AS7809AT-G1 | AS7809AT-E1 | AS7809AT-G1 | Tube |
| | | AS7812AT-E1 | AS7812AT-G1 | AS7812AT-E1 | AS7812AT-G1 | Tube |
| | | AS7815AT-E1 | AS7815AT-G1 | AS7815AT-E1 | AS7815AT-G1 | Tube |
| | | AS7818AT-E1 | AS7818AT-G1 | AS7818AT-E1 | AS7818AT-G1 | Tube |
| TO-220F-3 | -40 to 125°C | AS7805ATF-E1 | AS7805ATF-G1 | AS7805ATF-E1 | AS7805ATF-G1 | Tube |
| | | AS7806ATF-E1 | AS7806ATF-G1 | AS7806ATF-E1 | AS7806ATF-G1 | Tube |
| | | AS7808ATF-E1 | AS7808ATF-G1 | AS7808ATF-E1 | AS7808ATF-G1 | Tube |
| | | AS7809ATF-E1 | AS7809ATF-G1 | AS7809ATF-E1 | AS7809ATF-G1 | Tube |
| | | AS7812ATF-E1 | AS7812ATF-G1 | AS7812ATF-E1 | AS7812ATF-G1 | Tube |
| | | AS7815ATF-E1 | AS7815ATF-G1 | AS7815ATF-E1 | AS7815ATF-G1 | Tube |
| | | AS7818ATF-E1 | AS7818ATF-G1 | AS7818ATF-E1 | AS7818ATF-G1 | Tube |

**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR****AS78XXA****Ordering Information (Continued)**

| Package | Temperature Range | Part Number | | Marking ID | | Packing Type |
|--|-------------------|---------------|---------------|-------------|-------------|--------------|
| | | Lead Free | Green | Lead Free | Green | |
| TO-252-2 (1)/ TO-252-2 (3)/ TO-252-2 (4) | -40 to 125°C | AS7805AD-E1 | AS7805AD-G1 | AS7805AD-E1 | AS7805AD-G1 | Tube |
| | | AS7805ADTR-E1 | AS7805ADTR-G1 | AS7805AD-E1 | AS7805AD-G1 | Tape & Reel |
| | | AS7806AD-E1 | AS7806AD-G1 | AS7806AD-E1 | AS7806AD-G1 | Tube |
| | | AS7806ADTR-E1 | AS7806ADTR-G1 | AS7806AD-E1 | AS7806AD-G1 | Tape & Reel |
| | | AS7808AD-E1 | AS7808AD-G1 | AS7808AD-E1 | AS7808AD-G1 | Tube |
| | | AS7808ADTR-E1 | AS7808ADTR-G1 | AS7808AD-E1 | AS7808AD-G1 | Tape & Reel |
| | | AS7809AD-E1 | AS7809AD-G1 | AS7809AD-E1 | AS7809AD-G1 | Tube |
| | | AS7809ADTR-E1 | AS7809ADTR-G1 | AS7809AD-E1 | AS7809AD-G1 | Tape & Reel |
| | | AS7812AD-E1 | AS7812AD-G1 | AS7812AD-E1 | AS7812AD-G1 | Tube |
| | | AS7812ADTR-E1 | AS7812ADTR-G1 | AS7812AD-E1 | AS7812AD-G1 | Tape & Reel |
| | | AS7815AD-E1 | AS7815AD-G1 | AS7815AD-E1 | AS7815AD-G1 | Tube |
| | | AS7815ADTR-E1 | AS7815ADTR-G1 | AS7815AD-E1 | AS7815AD-G1 | Tape & Reel |
| | | AS7818AD-E1 | AS7818AD-G1 | AS7818AD-E1 | AS7818AD-G1 | Tube |
| | | AS7818ADTR-E1 | AS7818ADTR-G1 | AS7818AD-E1 | AS7818AD-G1 | Tape & Reel |

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR****AS78XXA****Absolute Maximum Ratings (Note 1)**

| Parameter | Symbol | Value | | Unit |
|-------------------------------------|---------------|--|-----|------|
| Input Voltage | V_{IN} | 36 | | V |
| Lead Temperature (Soldering, 10sec) | T_{LEAD} | 260 | | °C |
| Power Dissipation | P_D | Internally Limited | | W |
| Operating Junction Temperature | T_J | 150 | | °C |
| Storage Temperature Range | T_{STG} | -65 to 150 | | °C |
| Thermal Resistance | θ_{JA} | TO-220-3 | 60 | °C/W |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | 100 | |
| | | TO-220F-3 | 60 | |
| ESD (Human Body Model) | ESD | 6000 | | V |
| ESD (Machine Model) | ESD | 500 | | V |

Note 1: Stresses greater than 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 beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Recommended Operating Conditions

| Parameter | | Symbol | Min | Max | Unit |
|--------------------------------------|---------|----------|-----|-----|------|
| Input Voltage | AS7805A | V_{IN} | | 25 | V |
| | AS7806A | | | 26 | |
| | AS7808A | | | 28 | |
| | AS7809A | | | 29 | |
| | AS7812A | | | 32 | |
| | AS7815A | | | 32 | |
| | AS7818A | | | 32 | |
| Operating Junction Temperature Range | | T_J | -40 | 125 | °C |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Electrical Characteristics

AS7805A ($V_{IN}=10V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|---|-----|------|-----|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 4.9 | 5 | 5.1 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=7.5V$ to $20V$, $P_D \leq 15W$ | 4.8 | | 5.2 | |
| Line Regulation | V_{RLINE} | $V_{IN}=7.5V$ to $20V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 25 | 50 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=10V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 20 | 50 | mV |
| Quiescent Current | I_Q | $V_{IN}=10V$, $I_{OUT}=0$ | | 3.2 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=8V$ to $25V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=8V$ to $18V$, $f=120Hz$, $I_{OUT}=500mA$ | | 70 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 10 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.05 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=10V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 0.4 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



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Electrical Characteristics (Continued)

AS7806A ($V_{IN}=11V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|--|------|------|------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 5.88 | 6 | 6.12 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=8.6V$ to $21V$, $P_D \leq 15W$ | 5.76 | | 6.24 | |
| Line Regulation | V_{RLINE} | $V_{IN}=8.6V$ to $21V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 25 | 60 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=11V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 20 | 60 | mV |
| Quiescent Current | I_Q | $V_{IN}=11V$, $I_{OUT}=0$ | | 3.2 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=8.6V$ to $21V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=9.5V$ to $19.5V$, $f=120Hz$, $I_{OUT}=500mA$ | | 65 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 10 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=11V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 0.5 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



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AS78XXA

Electrical Characteristics (Continued)

AS7808A ($V_{IN}=14V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|--|------|------|------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 7.84 | 8 | 8.16 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=10.6V$ to $23V$, $P_D \leq 15W$ | 7.7 | | 8.3 | |
| Line Regulation | V_{RLINE} | $V_{IN}=10.6V$ to $23V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 25 | 75 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=14V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 25 | 75 | mV |
| Quiescent Current | I_Q | $V_{IN}=14V$, $I_{OUT}=0$ | | 3.2 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=10.6V$ to $23V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=11.5V$ to $21.5V$, $f=120Hz$, $I_{OUT}=500mA$ | | 62 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 10 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=14V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 0.64 | | mV/ $^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR AS78XXA

Electrical Characteristics (Continued)

AS7809A ($V_{IN}=15V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|--|------|------|------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 8.82 | 9 | 9.18 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=11.5V$ to $23V$, $P_D \leq 15W$ | 8.65 | | 9.35 | |
| Line Regulation | V_{RLINE} | $V_{IN}=11.5V$ to $23V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 25 | 90 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=14V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 25 | 100 | mV |
| Quiescent Current | I_Q | $V_{IN}=15V$, $I_{OUT}=0$ | | 3.2 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=11.5V$ to $23V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=11.5V$ to $21.5V$, $f=120Hz$, $I_{OUT}=500mA$ | | 61 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 10 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=15V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 0.72 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR AS78XXA

Electrical Characteristics (Continued)

AS7812A ($V_{IN}=19V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|--|-------|------|-------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 11.75 | 12 | 12.25 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=14.8V$ to $27V$, $P_D \leq 15W$ | 11.5 | | 12.5 | |
| Line Regulation | V_{RLINE} | $V_{IN}=14.8V$ to $27V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 25 | 120 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=19V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 40 | 120 | mV |
| Quiescent Current | I_Q | $V_{IN}=19V$, $I_{OUT}=0$ | | 3.4 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=14.8V$ to $30V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=15V$ to $25V$, $f=120Hz$, $I_{OUT}=500mA$ | | 60 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 11 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=18V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 0.96 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Electrical Characteristics (Continued)

AS7815A ($V_{IN}=23V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|--|------|------|------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 14.7 | 15 | 15.3 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=17.9V$ to $30V$, $P_D \leq 15W$ | 14.4 | | 15.6 | |
| Line Regulation | V_{RLINE} | $V_{IN}=17.9V$ to $30V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 35 | 150 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=23V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 70 | 150 | mV |
| Quiescent Current | I_Q | $V_{IN}=23V$, $I_{OUT}=0$ | | 3.4 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=17.9V$ to $30V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=18.5V$ to $28.5V$, $f=120Hz$, $I_{OUT}=500mA$ | | 58 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 11 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=21V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 1.2 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Electrical Characteristics (Continued)

AS7818A ($V_{IN}=27V$, $I_{OUT}=1A$, $T_J=-40$ to $125^{\circ}C$, unless otherwise specified.)

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|-------------------------------------|---|-------|------|-------|------------------|
| Output Voltage | V_{OUT} | $T_J=25^{\circ}C$ | 17.64 | 18 | 18.36 | V |
| | | $I_{OUT}=5mA$ to $1A$, $V_{IN}=21V$ to $33V$, $P_D \leq 15W$ | 17.3 | | 18.7 | |
| Line Regulation | V_{RLINE} | $V_{IN}=21V$ to $33V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 45 | 180 | mV |
| Load Regulation | V_{RLOAD} | $V_{IN}=27V$, $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 85 | 180 | mV |
| Quiescent Current | I_Q | $V_{IN}=27V$, $I_{OUT}=0$ | | 3.6 | 6 | mA |
| Quiescent Current Change | ΔI_Q | $V_{IN}=21V$ to $33V$, $I_{OUT}=500mA$, $T_J=25^{\circ}C$ | | 0.3 | 0.8 | mA |
| | | $I_{OUT}=5mA$ to $1A$, $T_J=25^{\circ}C$ | | 0.08 | 0.5 | |
| Ripple Rejection | PSRR | $V_{IN}=22V$ to $32V$, $f=120Hz$, $I_{OUT}=500mA$ | | 57 | | dB |
| Dropout Voltage | V_{DROP} | $\Delta V_{OUT}=1\%$, $I_{OUT}=1A$, $T_J=25^{\circ}C$ | | 2 | | V |
| Output Noise Voltage | N_O | $f=10Hz$ to $100kHz$, $T_A=25^{\circ}C$ | | 10 | | $\mu V/V_O$ |
| Output Resistance | R_O | $f=1kHz$ | | 11 | | $m\Omega$ |
| Short Circuit Current | I_{SC} | $V_{IN}=35V$, $T_A=25^{\circ}C$ | | 0.2 | | A |
| Peak Output Current | I_{PK} | $V_{IN}=24V$, $T_J=25^{\circ}C$ | | 2.2 | | A |
| Output Voltage Temperature Coefficient | $\Delta V_{OUT}/\Delta T$ | | | 1.44 | | $mV/^{\circ}C$ |
| | $(\Delta V_{OUT}/V_{OUT})/\Delta T$ | | | 80 | | ppm/ $^{\circ}C$ |
| Thermal Resistance | θ_{JC} | TO-220-3 | | 9 | | $^{\circ}C/W$ |
| | | TO-252-2 (1)/TO-252-2 (3)/TO-252-2 (4) | | 16 | | |
| | | TO-220F-3 | | 9 | | |



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Typical Performance Characteristics

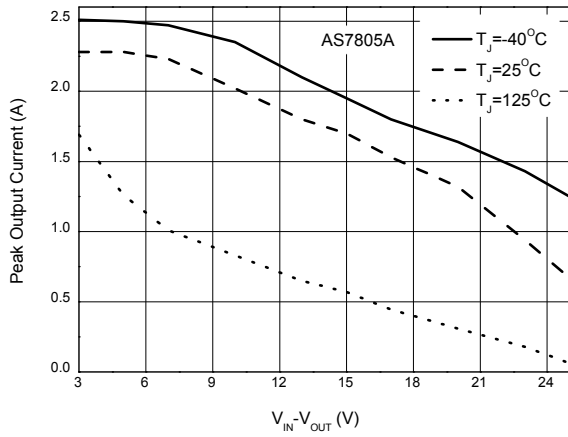


Figure 4. Peak Output Current vs. Input/Output Differential Voltage

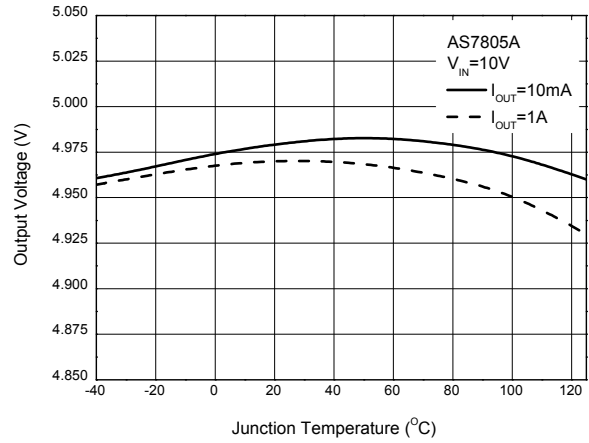


Figure 5. Output Voltage vs. Junction Temperature

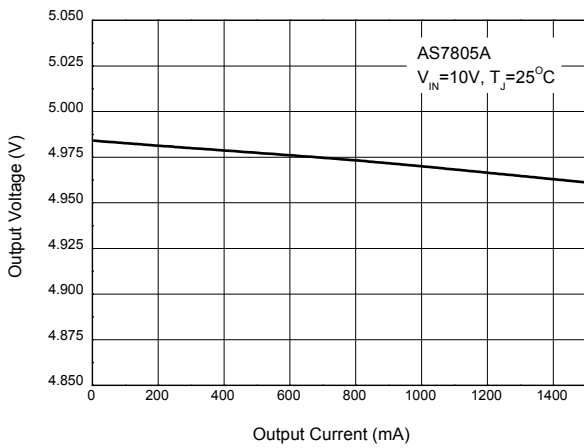


Figure 6. Output Voltage vs. Output Current

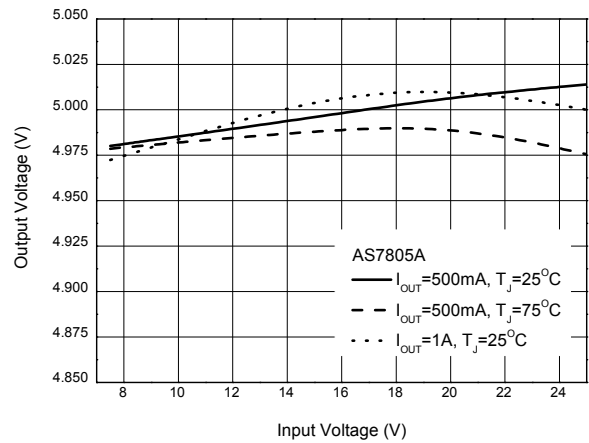


Figure 7. Output Voltage vs. Input Voltage



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Typical Performance Characteristics (Continued)

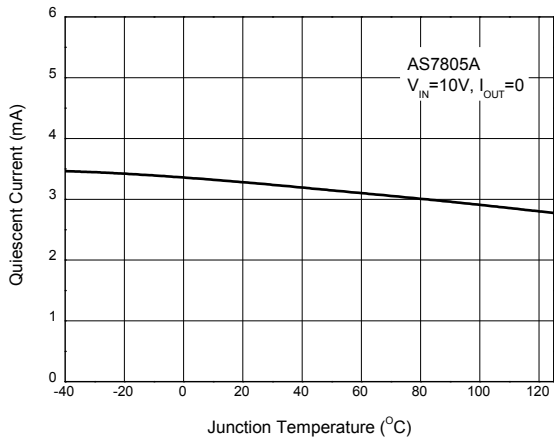


Figure 8. Quiescent Current vs. Junction Temperature

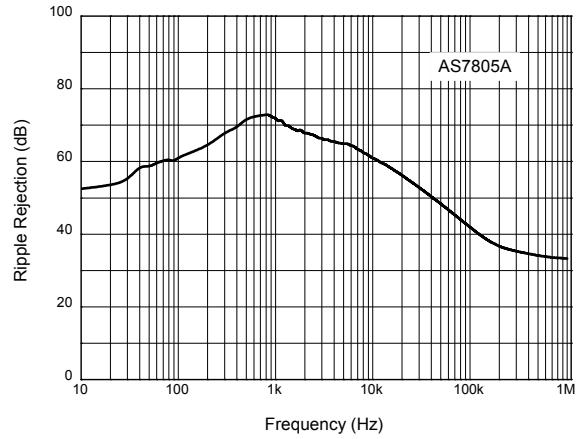


Figure 9. Ripple Rejection vs. Frequency

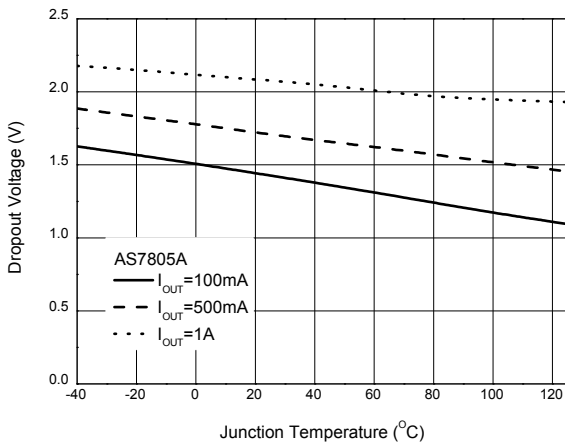


Figure 10. Dropout Voltage vs. Junction Temperature

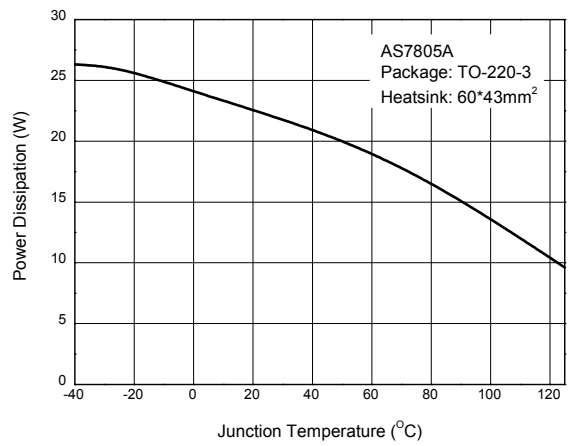


Figure 11. Power Dissipation vs. Junction Temperature

1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Typical Performance Characteristics (Continued)

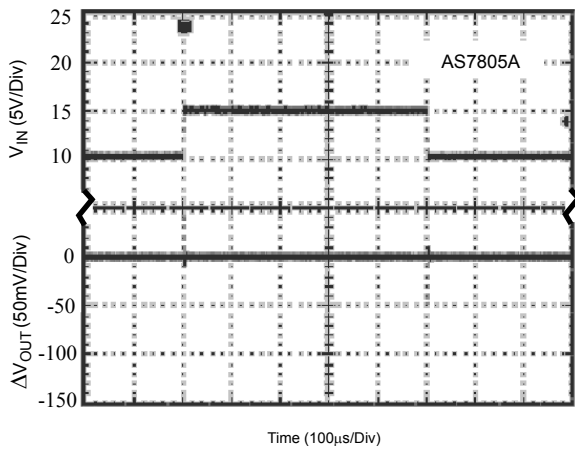


Figure 12. Line Transient
 (Conditions: $I_{OUT}=500mA$, $C_{OUT}=0.1\mu F$)

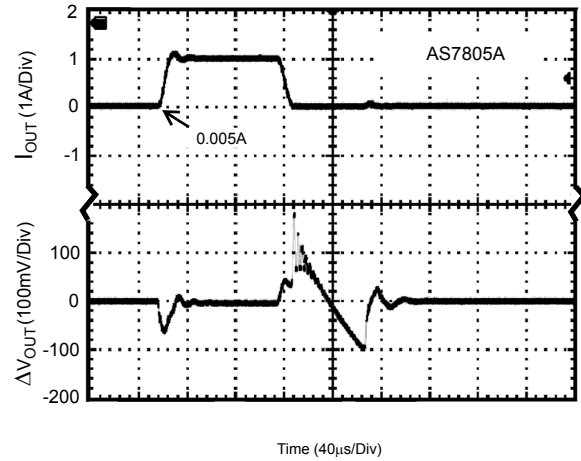


Figure 13. Load Transient
 (Conditions: $V_{IN}=10V$, $C_{IN}=0.33\mu F$, $C_{OUT}=0.1\mu F$)

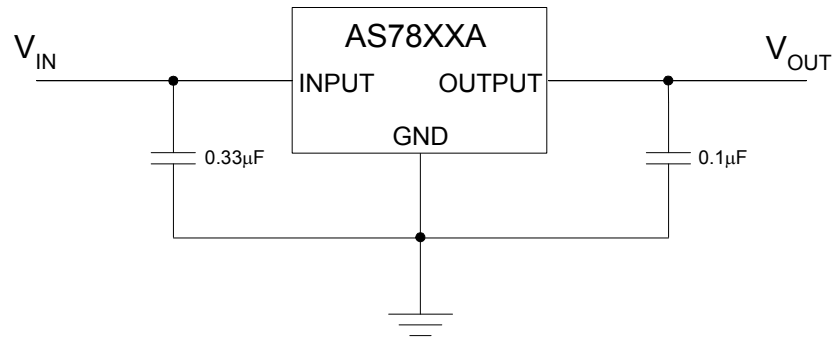
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**AS78XXA****Typical Application**

Figure 14. Typical Application of AS78XXA



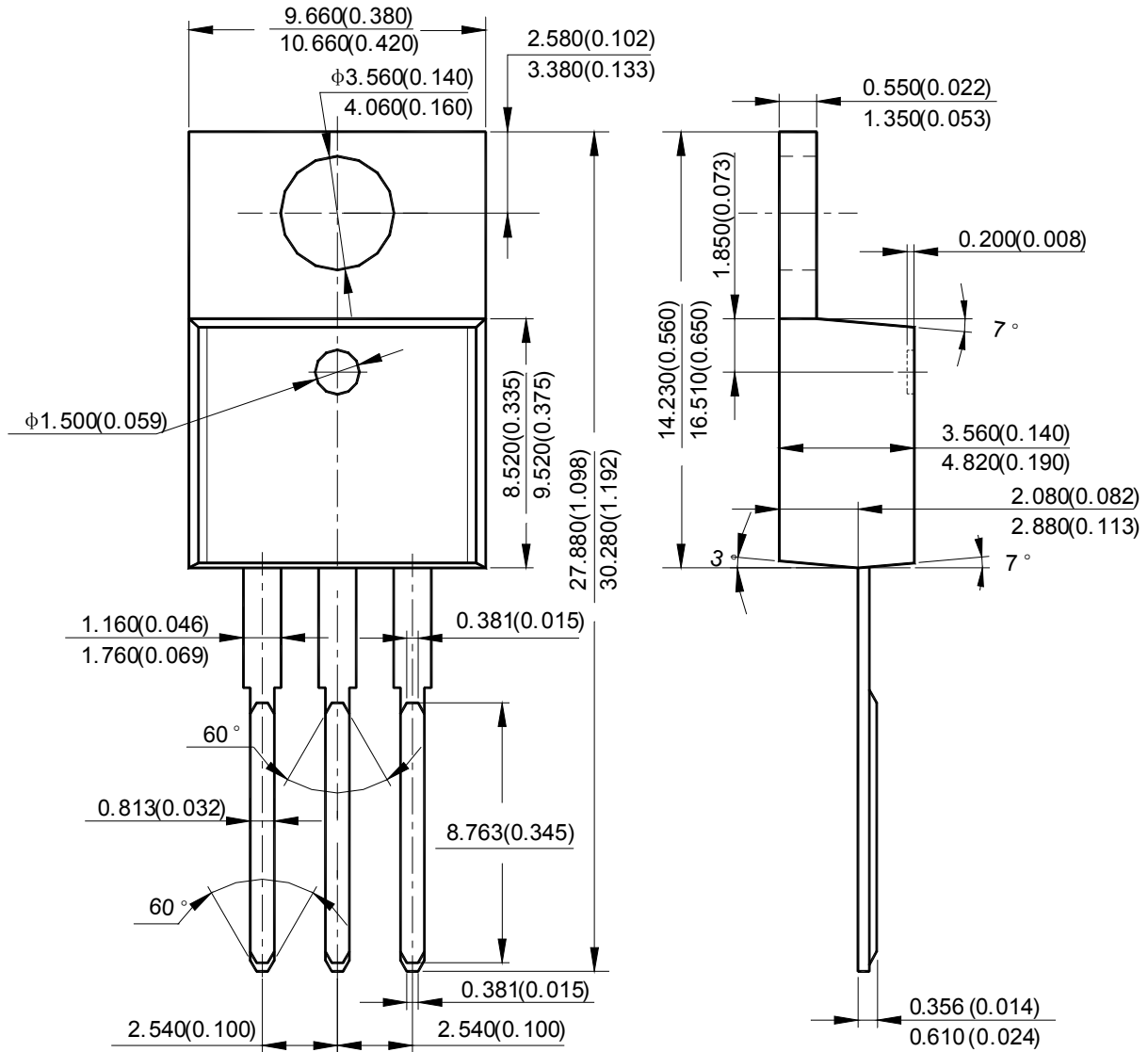
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions

TO-220-3

Unit: mm(inch)





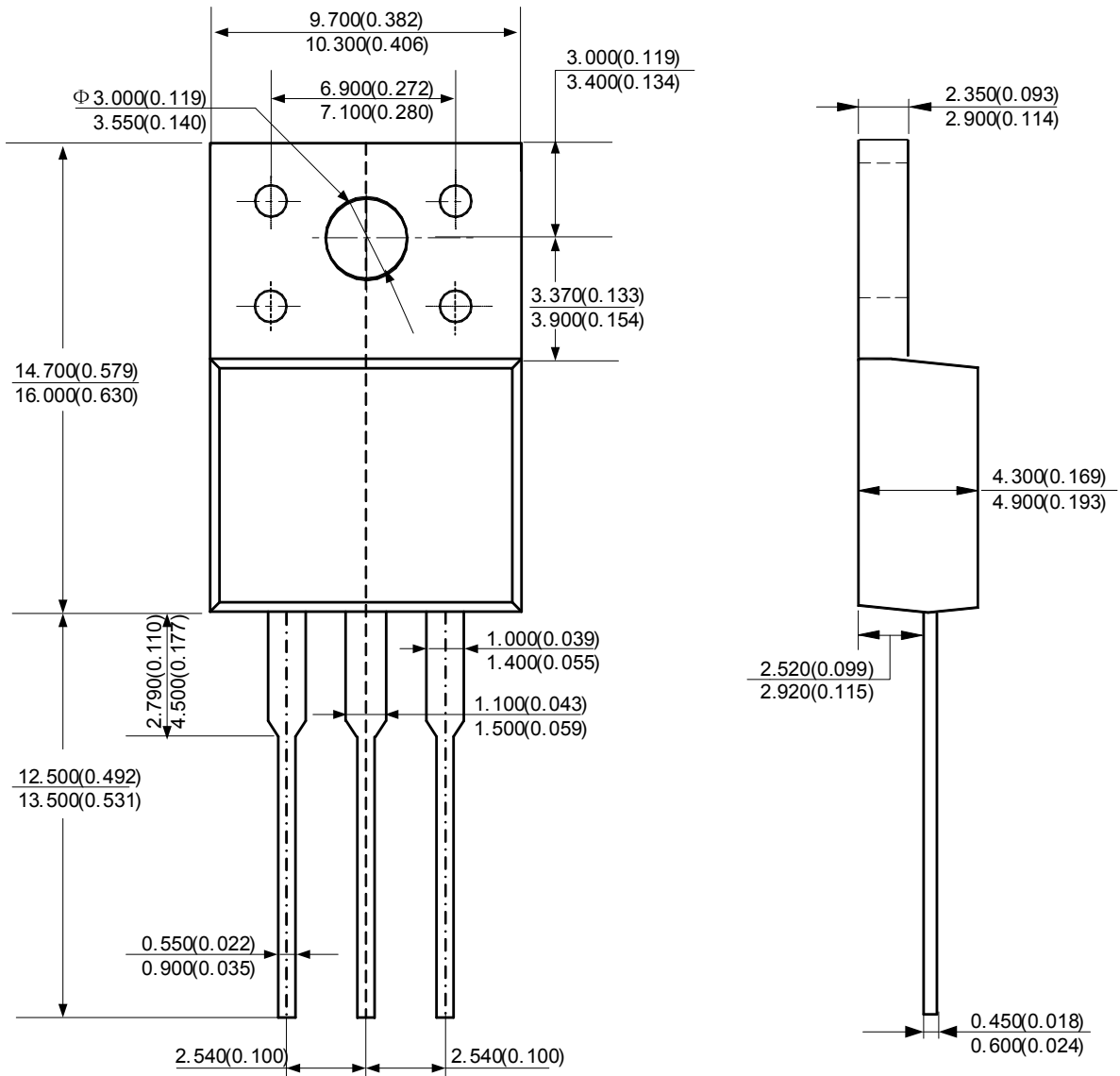
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-220F-3

Unit: mm(inch)





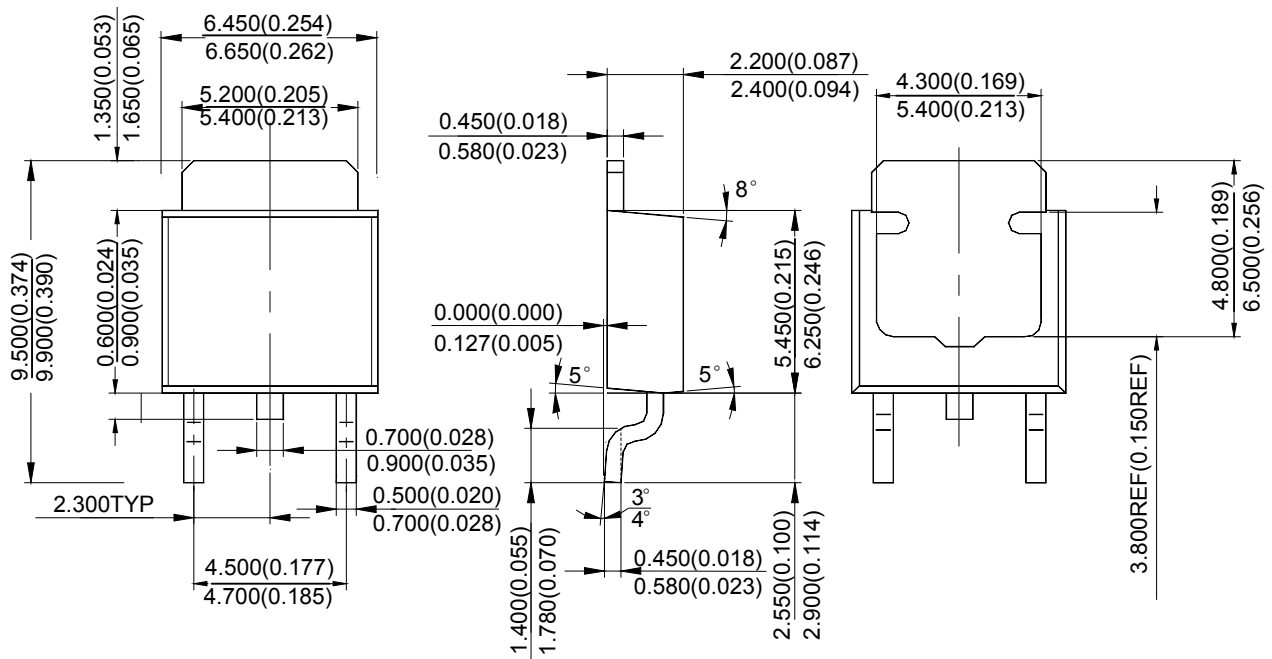
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-252-2 (1)

Unit: mm(inch)





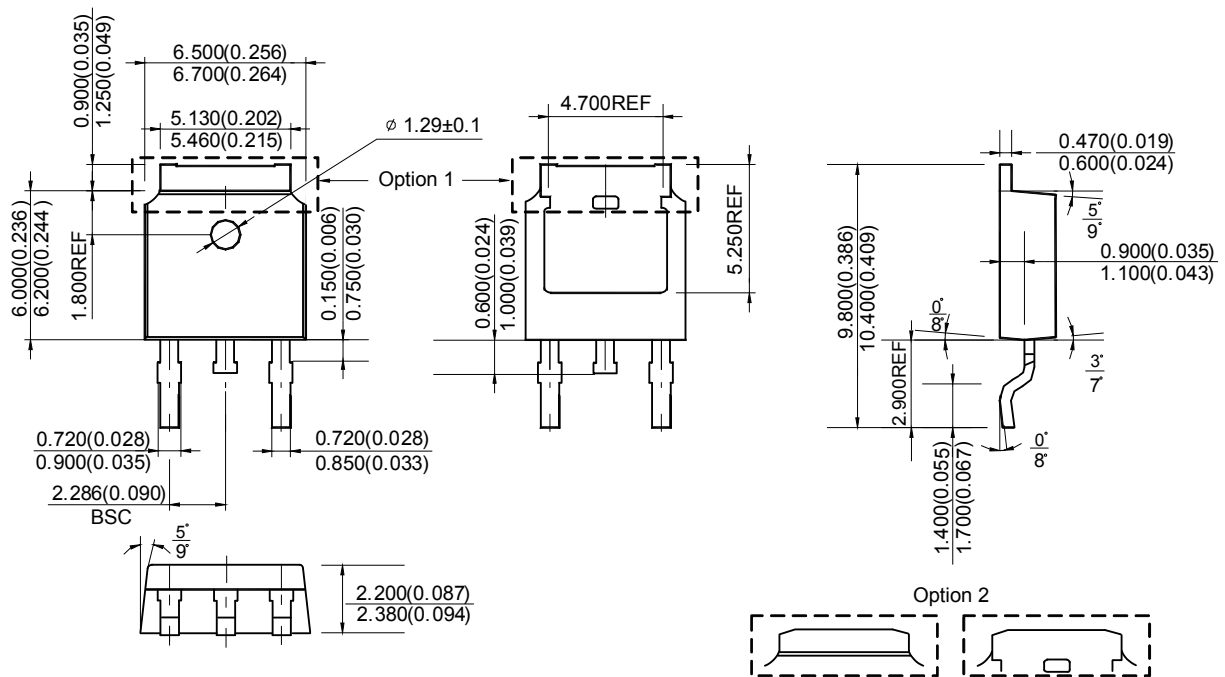
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-252-2 (3)

Unit: mm(inch)





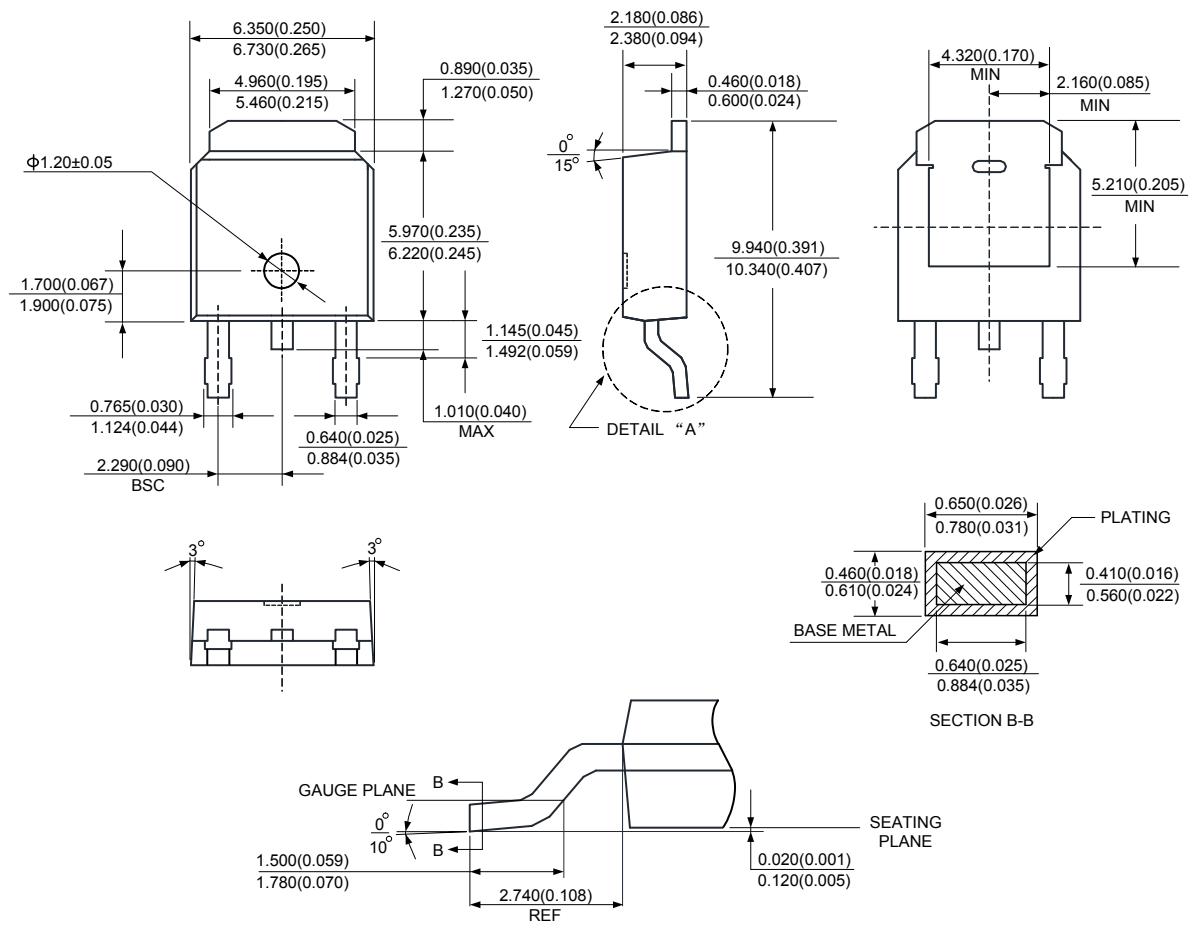
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-252-2 (4)

Unit: mm(inch)





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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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