

**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

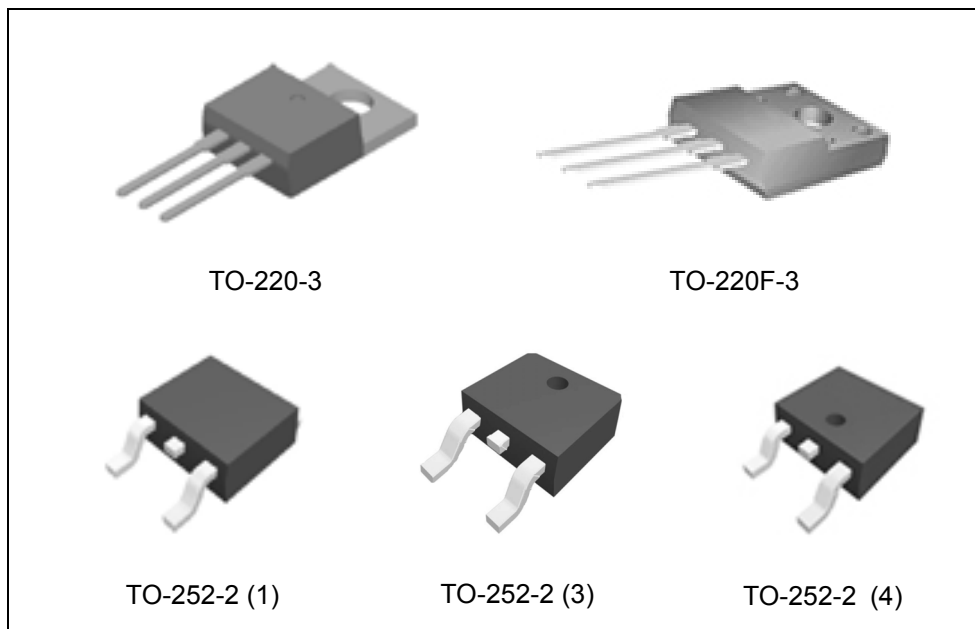


Figure 1. Package Types of AS78XXA

**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**Pin Configuration**

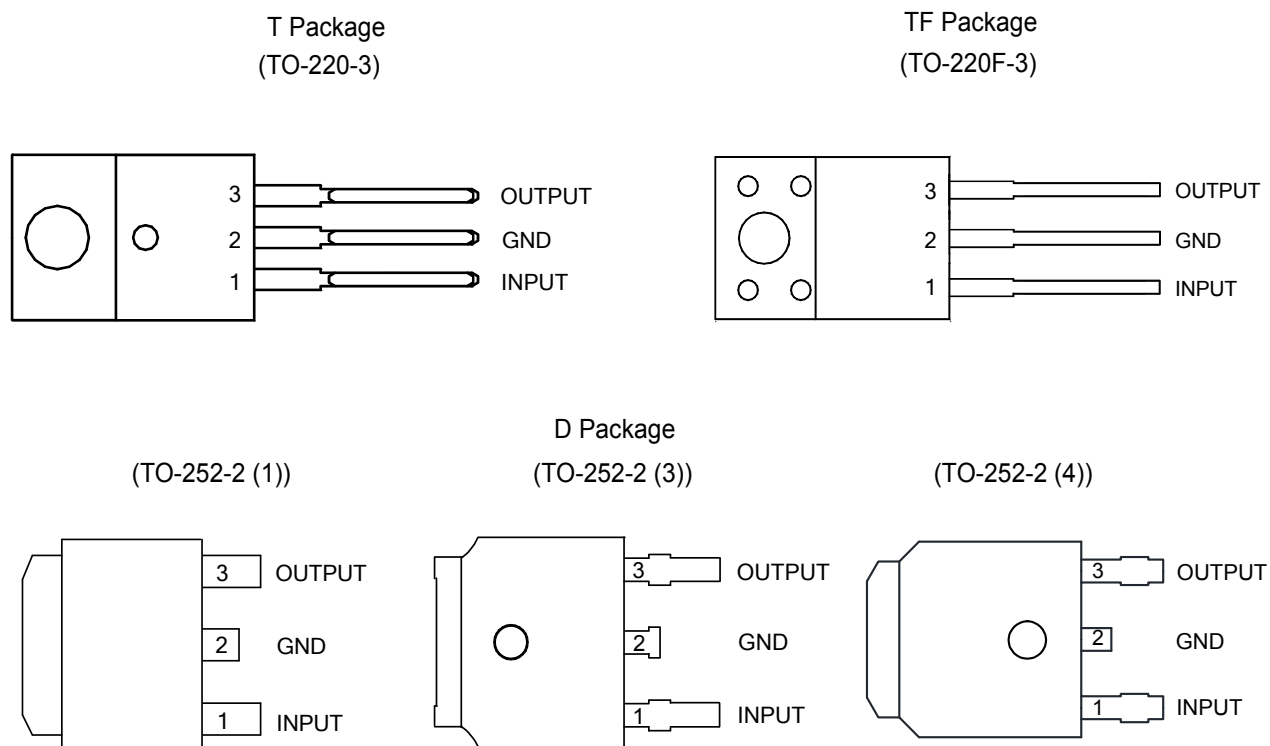


Figure 2. Pin Configuration of AS78XXA (Top View)

**Pin Description**

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

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

**Functional Block Diagram**

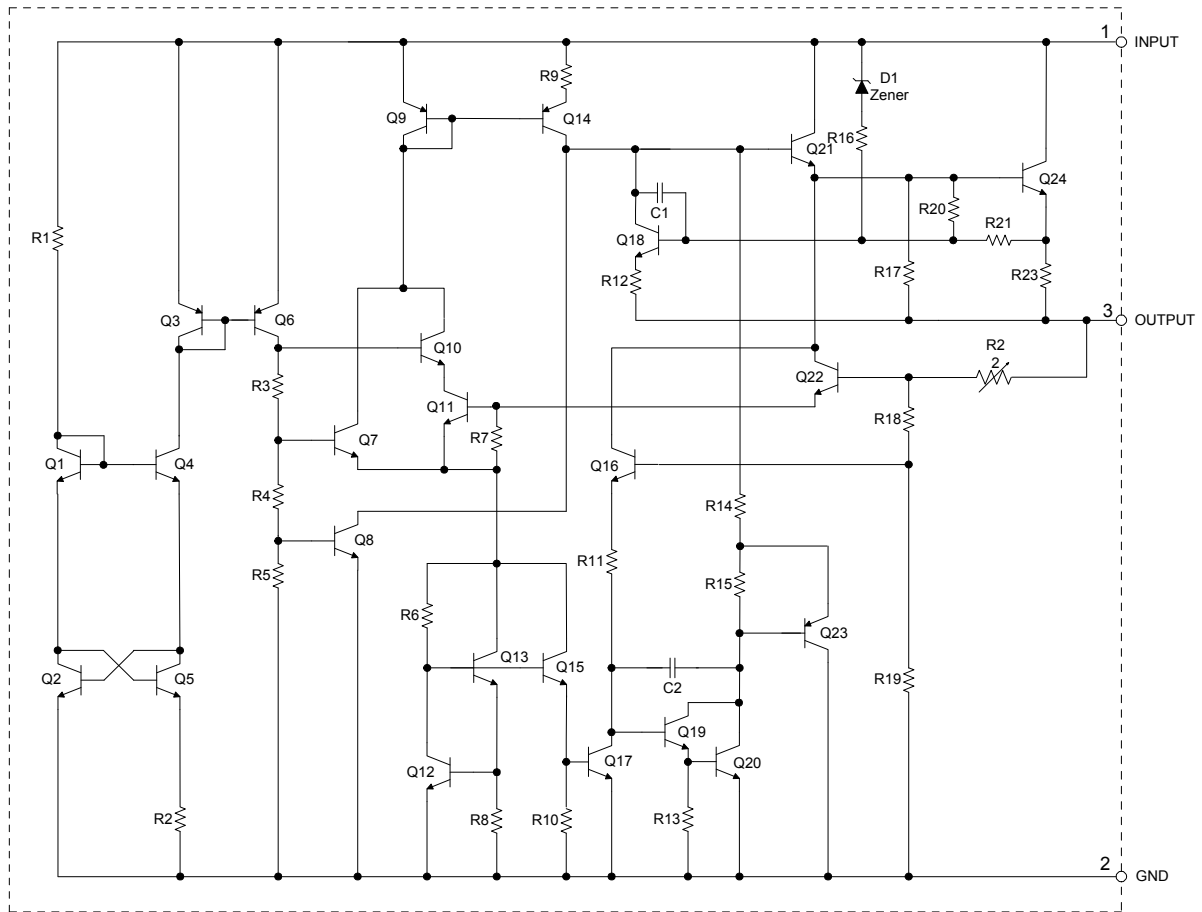


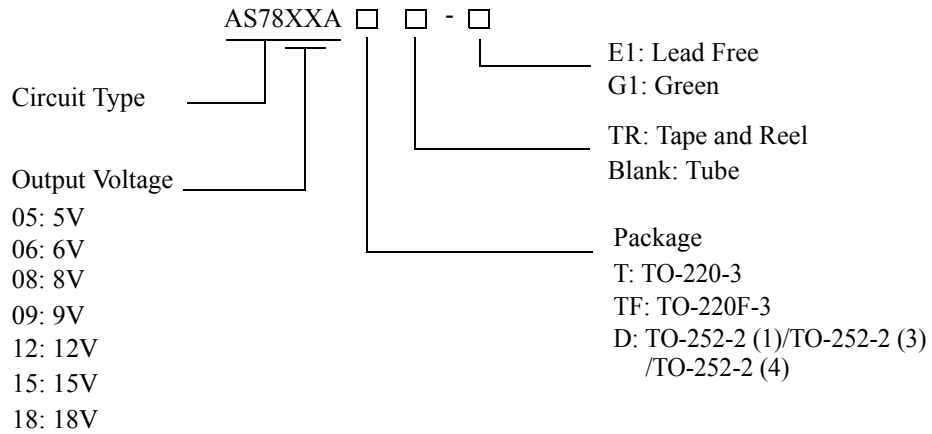
Figure 3. Functional Block Diagram of AS78XXA



**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**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	$\theta_{JA}$	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	$\Delta I_Q$	$V_{IN}=8V$ 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	$\theta_{JC}$	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)**

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	$\Delta I_Q$	$V_{IN}=8.6V$ 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	$\theta_{JC}$	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)**

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	$\Delta I_Q$	$V_{IN}=10.6V$ 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	$\theta_{JC}$	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	$\Delta I_Q$	$V_{IN}=11.5V$ 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	$\theta_{JC}$	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	$\Delta I_Q$	$V_{IN}=14.8V$ 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	$\theta_{JC}$	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	$\Delta I_Q$	$V_{IN}=17.9V$ 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	$\theta_{JC}$	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	$\Delta I_Q$	$V_{IN}=21V$ 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	$\theta_{JC}$	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**

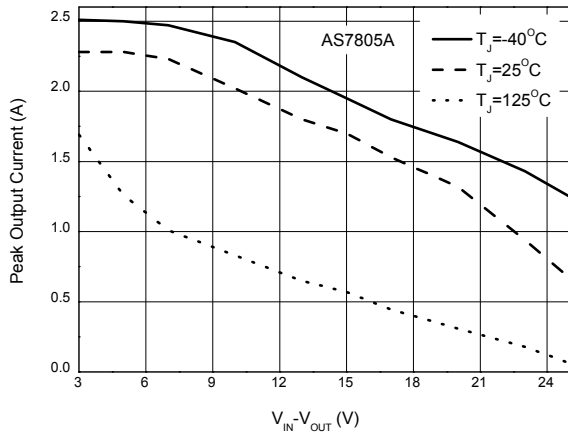


Figure 4. Peak Output Current vs. Input/Output Differential Voltage

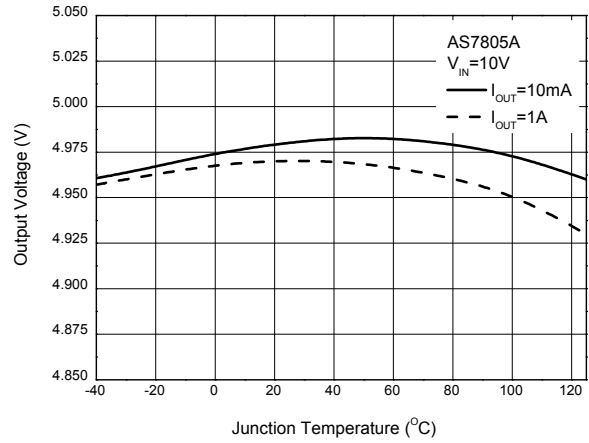


Figure 5. Output Voltage vs. Junction Temperature

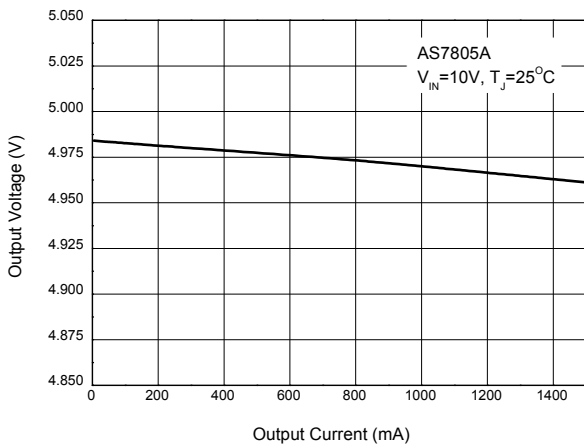


Figure 6. Output Voltage vs. Output Current

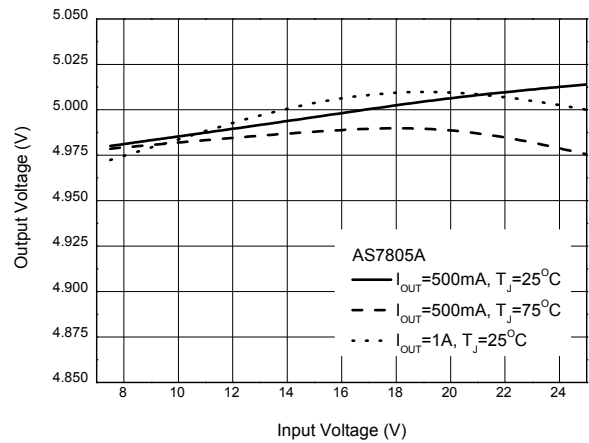


Figure 7. Output Voltage vs. Input Voltage



1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Typical Performance Characteristics (Continued)

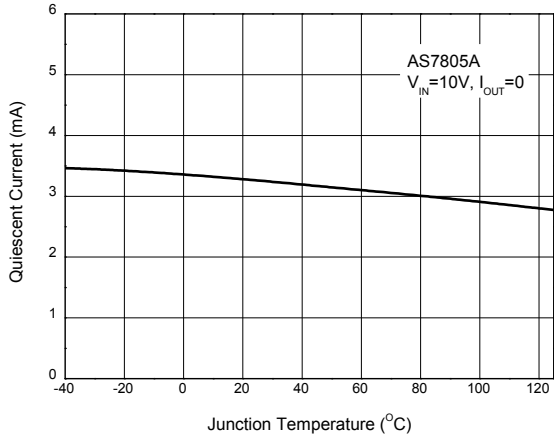


Figure 8. Quiescent Current vs. Junction Temperature

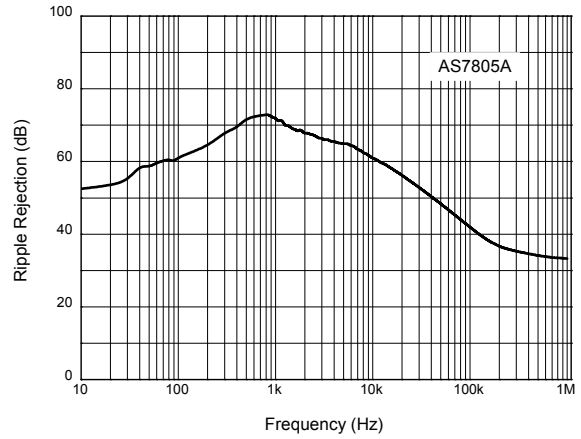


Figure 9. Ripple Rejection vs. Frequency

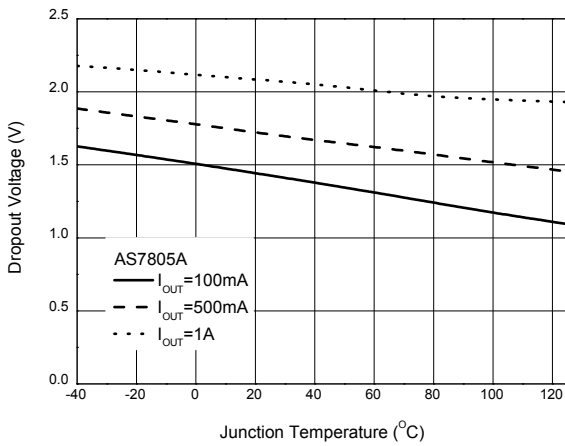


Figure 10. Dropout Voltage vs. Junction Temperature

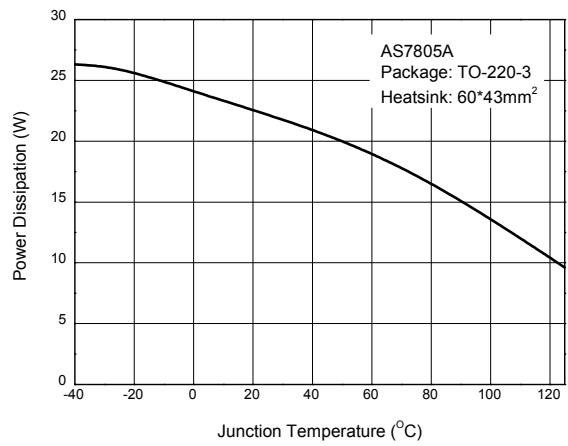


Figure 11. Power Dissipation vs. Junction Temperature

**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**Typical Performance Characteristics (Continued)**

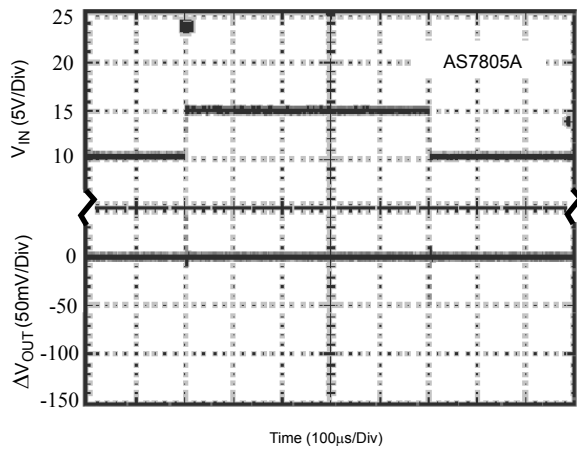


Figure 12. Line Transient  
(Conditions:  $I_{OUT}=500mA$ ,  $C_{OUT}=0.1\mu F$ )

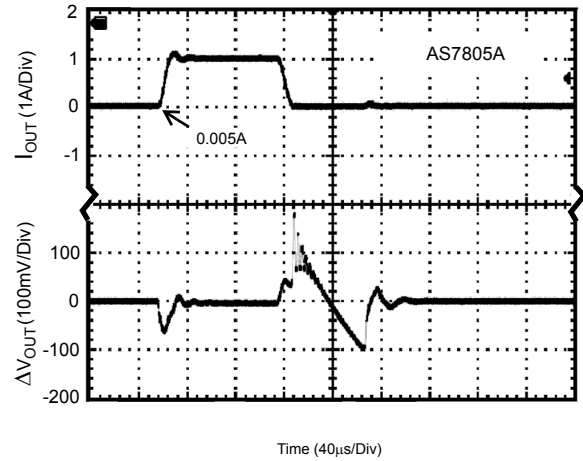


Figure 13. Load Transient  
(Conditions:  $V_{IN}=10V$ ,  $C_{IN}=0.33\mu F$ ,  $C_{OUT}=0.1\mu F$ )



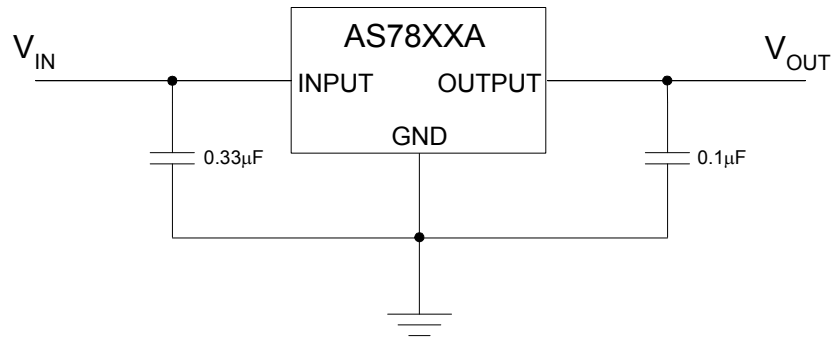
**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR****AS78XXA****Typical Application**

Figure 14. Typical Application of AS78XXA



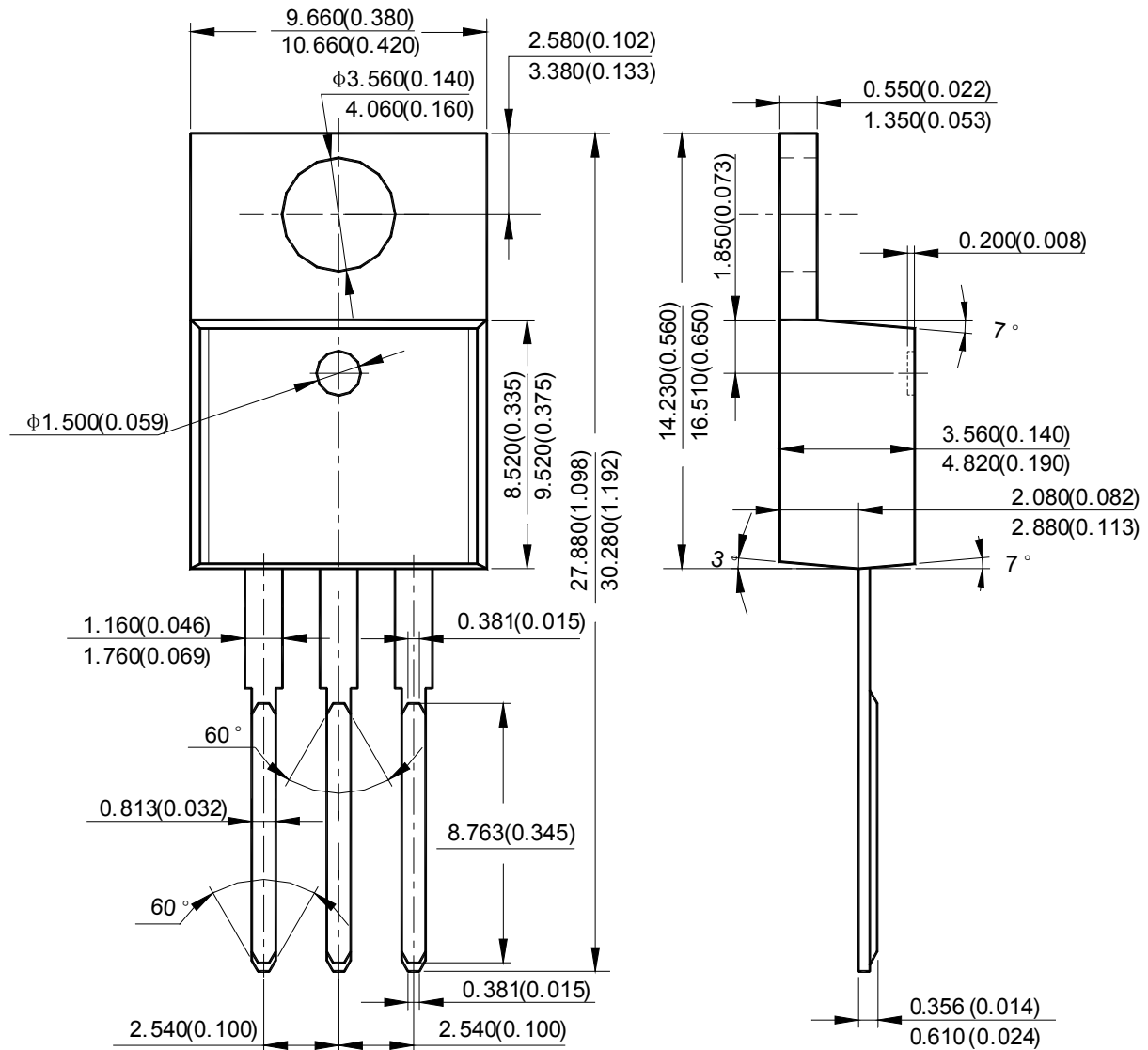
**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**Mechanical Dimensions**

**TO-220-3**

**Unit: mm(inch)**





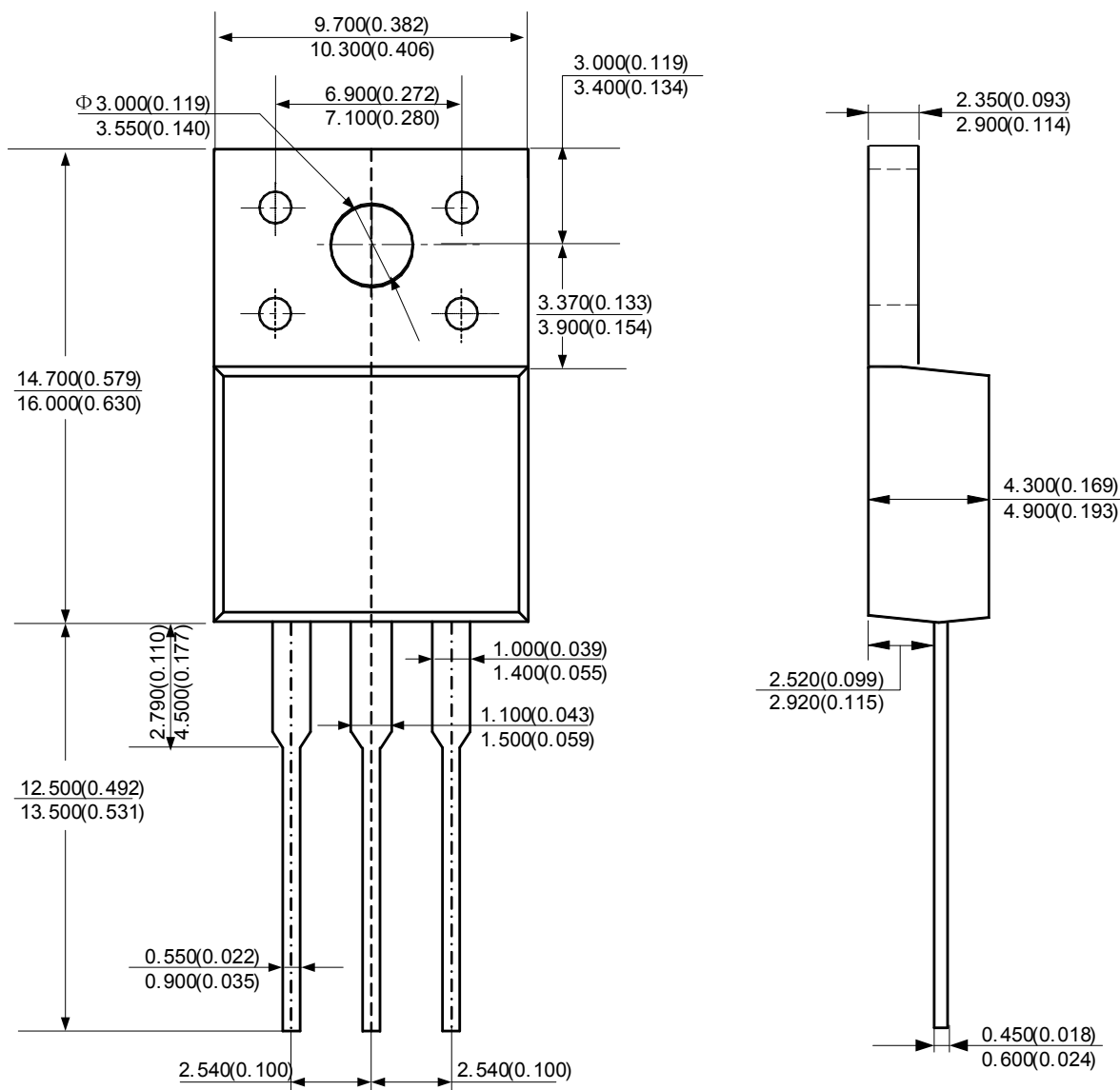
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-220F-3

Unit: mm(inch)





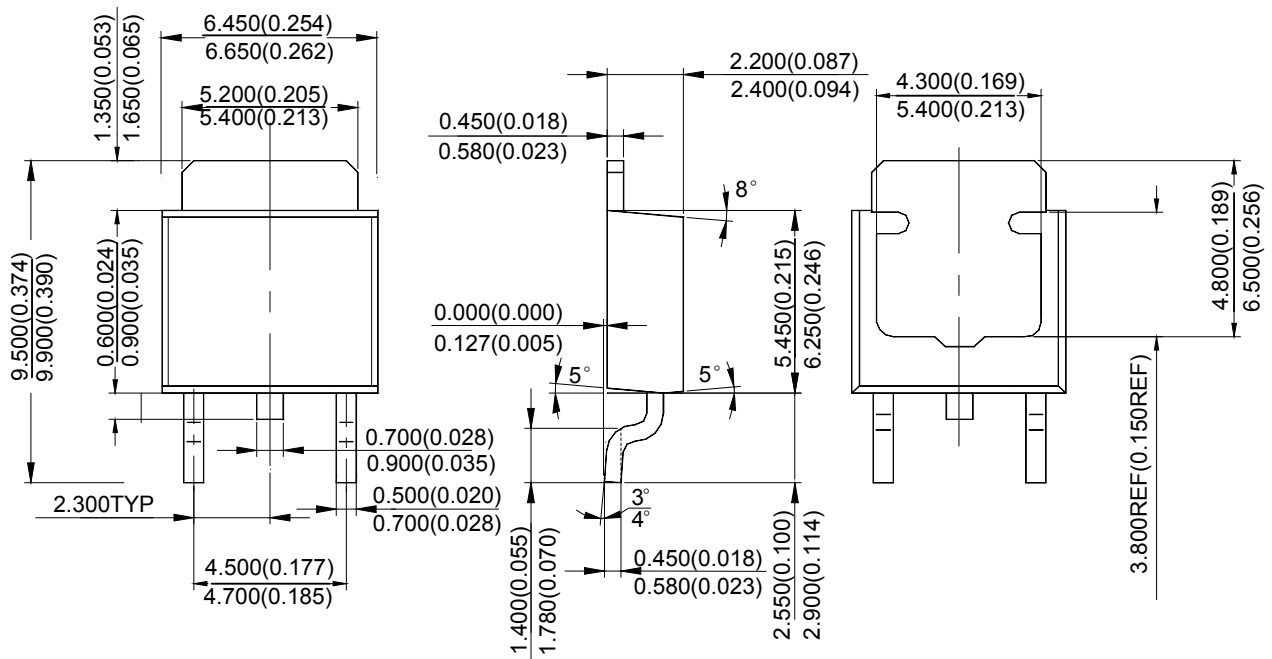
**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**Mechanical Dimensions (Continued)**

**TO-252-2 (1)**

**Unit: mm(inch)**





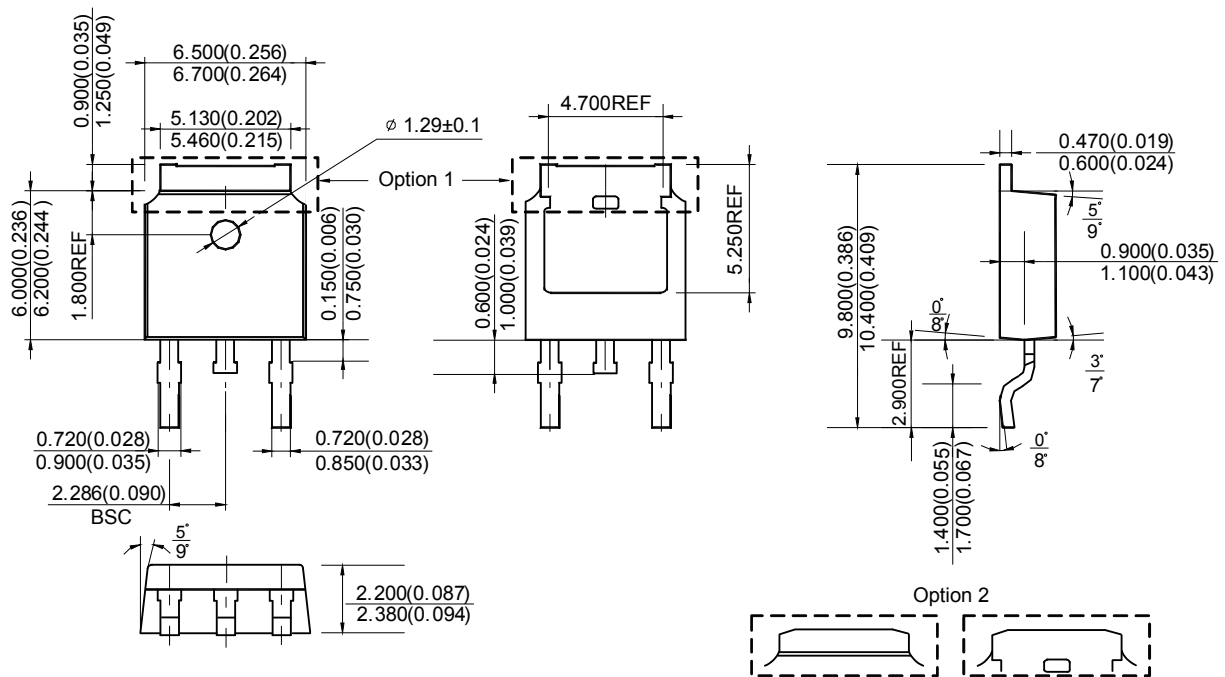
**1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR**

**AS78XXA**

**Mechanical Dimensions (Continued)**

**TO-252-2 (3)**

**Unit: mm(inch)**





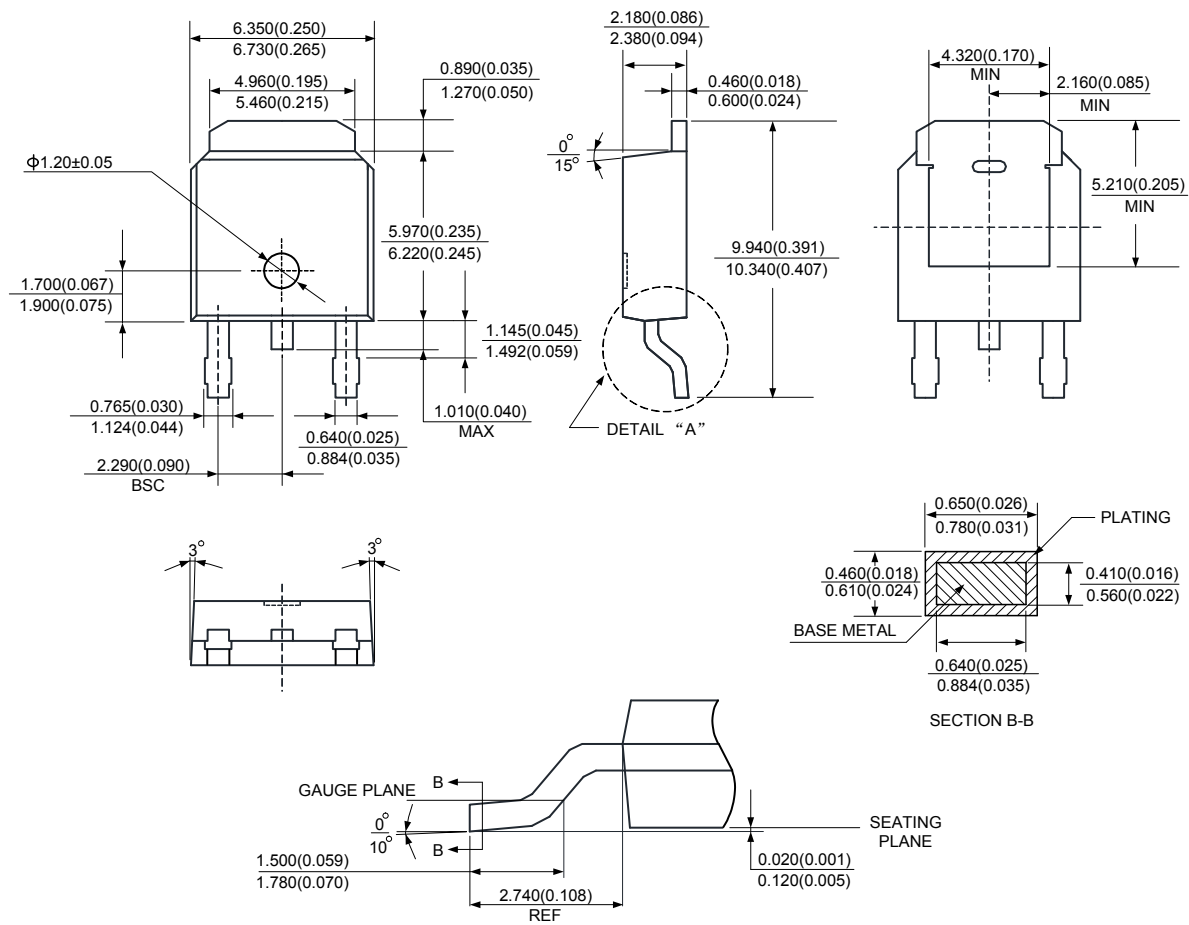
1A 3-TERMINAL POSITIVE VOLTAGE REGULATOR

AS78XXA

Mechanical Dimensions (Continued)

TO-252-2 (4)

Unit: mm(inch)





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