

**1A Low Dropout Positive Regulator****◆ DESCRIPTION**

MT1122A is a low dropout positive fixed-mode regulator with minimum of 1A output current capability. The product is specifically designed to provide well-regulated supply for low voltage IC applications such as high-speed bus termination and low current 1.2V logic supply. MT1122A is also well suited for other applications such as VGA cards.

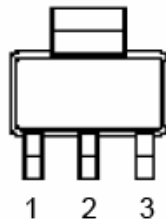
MT1122A is guaranteed to have a typical 1.3V dropout at full load current making it ideal to provide well-regulated outputs of 1.2 output voltage with 2.7V input voltage supply

**◆ FEATURES**

- 1.3V typical dropout at full load current
- Fixed 1.2V±2% output voltage
- Fast transient response
- Output current limiting
- Built-in thermal shutdown
- Good noise rejection
- Rugged 2KV ESD withstand capability.

**◆ APPLICATIONS**

- PC peripheral
- Communication

**◆ PIN CONFIGURATIONS****SOT-223 (Top View)****MT1122A** 1:GND, 2:OUT 3:IN

**◆ ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Maximum	Unit
Power Dissipation	$P_D$	Internally Limited	W
Input voltage	$V_{IN}$	12	V
Thermal resistance junction to case	$\theta_{JA}$	60	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	$T_J$	-40 to 150	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-40 to 150	$^{\circ}\text{C}$
Lead temperature (soldering) 10sec	$T_{LEAD}$	260	$^{\circ}\text{C}$

Note:

Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of the specified terminal.

**◆ ORDERING INFORMATION**

Device	Package		Vout Volts
MT1122A	A	SOT-223	Fixed output voltages 1.2V

**◆ POWER DISSIPATION TABLE**

Package	$\theta_{JA}$ ( $^{\circ}\text{C}/\text{W}$ )	$T_A \leq 25^{\circ}\text{C}$ Power rating(mW)	$T_A = 70^{\circ}\text{C}$ Power rating(mW)	$T_A = 85^{\circ}\text{C}$ Power rating (mW)
A	60	2083	1333	1083

Note :

- $\theta_{JA}$ : Thermal Resistance-Junction to Ambient, Junction Temperature Calculation:  

$$T_J = T_A + (P_D \times \theta_{JA}),$$
 The  $\theta_{JA}$  numbers are guidelines for the thermal performance of the device/PC-board system.  
 All of the above assume no ambient airflow.
- $\theta_{JT}$ : Thermal Resistance-Junction to Ambient, TC: case(Tab) temperature,  $T_J = T_C + (P_d \times \theta_{JT})$   
 For A package,  $\theta_{JT} = 15.0^{\circ}\text{C}/\text{W}$ .

**1A Low Dropout Positive Regulator**
**◆ RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Operating Conditions			Unit
		Min.	Typ.	Max.	
Input Voltage	$V_{IN}$	2.7	-	10	V
Load Current (with adequate heat sinking)	$I_O$	5	-	-	mA
Input Capacitor ( $V_{IN}$ to GND)	$C_{IN}$	1.0	-	-	$\mu$ F
Output Capacitor with ESR of $10\Omega$ max., ( $V_{OUT}$ to GND)	$C_{OUT}$	4.7	-	-	$\mu$ F
Junction temperature	$T_J$	-	-	150	$^{\circ}$ C

**◆ ELECTRICAL CHARACTERISTICS**

Operating Conditions:  $V_{IN} = 2.8V$ ,  $I_{OUT} = 10mA$ ,  $T_A = 25^{\circ}C$ ,  $C_{IN}=10\mu F$ ,  $C_{OUT}=10\mu F$ , unless otherwise specified

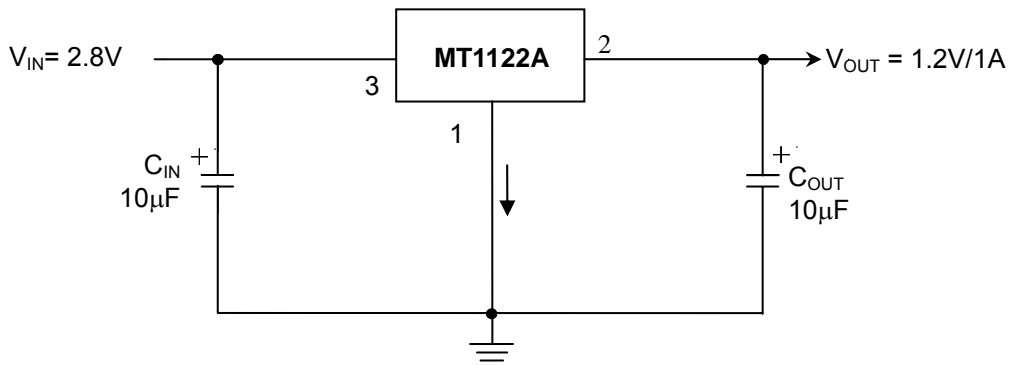
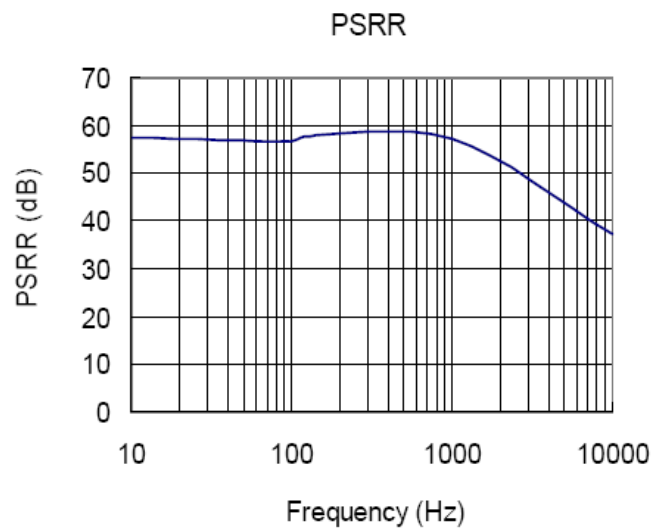
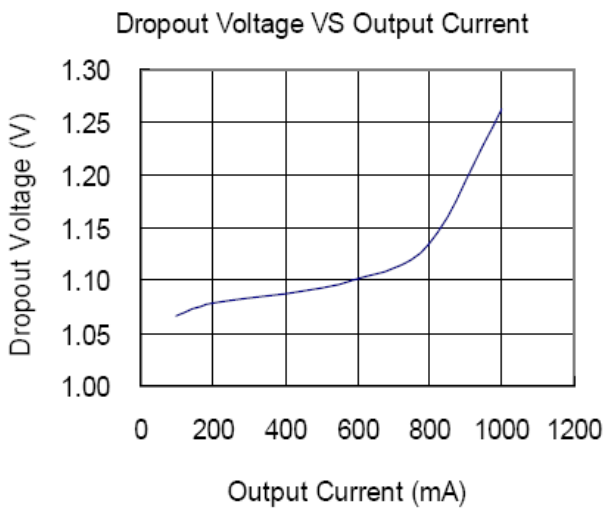
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage <sup>(1)</sup>	$V_O$		1.176	1.20	1.224	V
Line Regulation <sup>(1)</sup>	$V_{SR}$	$2.8V < V_{IN} < 12V$	-	0.3	-	%
Load Regulation <sup>(1)</sup>	$V_{LR}$	$10mA \leq I_{OUT} \leq 1A$	-	0.5	-	%
Dropout Voltage <sup>(2)</sup>	$V_D$	$I_{OUT} = 1A$	-	1.3	-	V
Current Limit	$I_{CL}$		1.1	-	-	A
Quiescent Current	$I_Q$		-	1.2	-	mA
Temperature Coefficient	$T_C$		-	0.02	-	$\%/^{\circ}C$
Thermal Protection	OTP		-	175	-	$^{\circ}C$
RMS output Noise	$V_N$	$T_A = 25^{\circ}C$ , $10Hz \leq f \leq 10kHz$	-	0.003	-	$\% V_O$
Ripple Rejection Ratio	PSRR	$f = 120Hz$ , $I_{OUT} = 10mA$ $C_{OUT} = 22\mu(Tantalum)$ , $(V_{IN}-V_{OUT}) = 3V$	-	57	-	dB

NOTES:

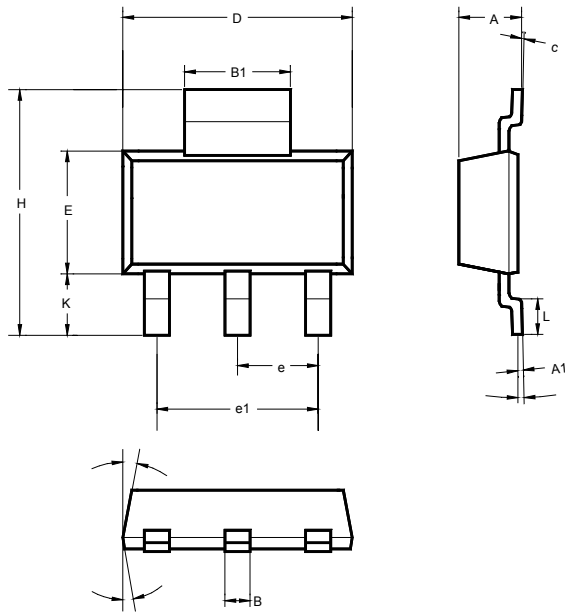
(1) Low duty cycle pulse testing with which  $T_J$  remain unchanged.

(2) The dropout voltage is the input/output differential at which the circuit ceases to regulate against further reduction in input voltage.

It is measured when the output voltage has dropped 2% from the nominal value obtained at  $V_{IN} = V_{OUT} + V_{dropout}$ .

**1A Low Dropout Positive Regulator**
**◆ TYPICAL APPLICATIONS**
**Fixed Voltage Regulator:**

**◆ TYPICAL PERFORMANCE CHARACTERISTICS**


◆ **PHYSICAL DIMENSIONS**  
**3-Pin Surface Mount SOT-223(A)**



	MILLIMETERS		
	MIN	TYP	MAX
A	1.50	1.65	1.80
A1	0.02	0.05	0.08
B	0.60	0.70	0.80
B1	2.90	-	3.15
c	0.28	0.30	0.32
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	2.3 BSC		
e1	4.6 BSC		
H	6.70	7.00	7.30
L	0.91	1.00	1.10
K	1.50	1.75	2.00
$\alpha$	0°	5°	10°
$\beta$		3°	