1.2V/1.32V 1A LOW DROPOUT FIXED-MODE REGULATOR

FEATURES

- **1.5V Maximum Dropout at Full Load Current**
- **Fast Transient Response**
- **Output Current Limiting**
- **Built-in Thermal Shutdown**
- **Needs Only 1uF Capacitor for Stability**
- **Good Noise Rejection**
- **3-Terminal Fixed 1.2V/1.32V**
- **Low ESR Ceramic Capacitor for Output Stability**
- **Packages : SOT-223, TO-252, SOT-89(R-type) & SOT-223(R-type)**
- **RoHS Compliant**

APPLICATIONS

- **PC Peripheral**
- **Communication**
- **LCD Modules**

DESCRIPTION

APE891X is a low dropout 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/1.32V logic supply.

APE891X is guaranteed to have lower than 1.5V dropout at full load current making it ideal to provide well-regulated outputs of 1.2/1.32 with 3V to 6V input supply.

TYPICAL APPLICATION

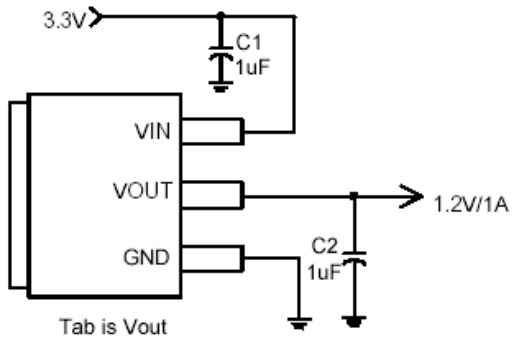


Figure 1. 1.2V fixed output

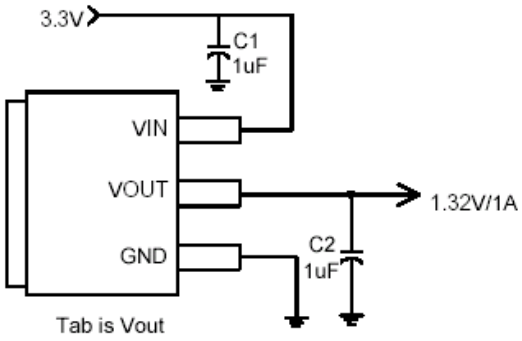
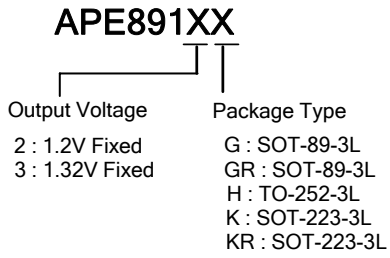


Figure 2. 1.32V fixed output

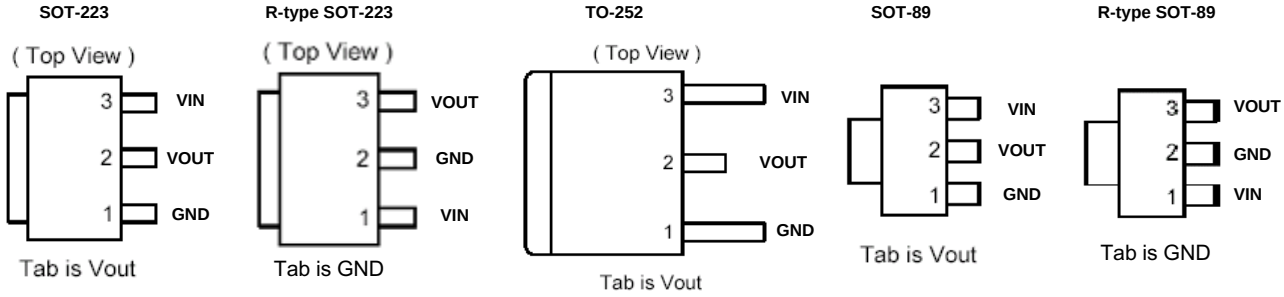
PACKAGE ORDERING INFORMATION



ABSOLUTE MAXIMUM RATINGS

VIN Supply Voltage(V_{IN})		-0.3 to 6 V
Power Dissipation(P_D)		Internal Limited
Storage Temperature Range(T_{ST})		-65 to 150ºC
Operating Temperature Range(T_{OP})		0 to 150ºC
Thermal Resistance from Junction to Case(Rth_{JC})		
	SOT-89	100°C/W
	SOT-223	15°C/W
	SOT-252	10°C/W
Thermal Resistance from Junction to Ambient(Rth_{JA})		
	SOT-89	300°C/W
	SOT-223	117°C/W
	SOT-252	92°C/W

PACKAGE INFORMATION



ELECTRICAL SPECIFICATIONS (Under Operating Conditions)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Reference Voltage	V_{FB}	T_J=25ºC,V_{IN}-V_{OUT}=1.5V, I_O=10mA	1.176	1.200	1.224	V
Output Voltage	V_{OUT}	APE8912 I_{OUT}=10mA, T_J=25ºC	1.176	1.200	1.224	V
		APE8913 3V≦V_{IN}≦6V	1.294	1.320	1.346	V
Line Regulation	V_{LINE}	T_J=25ºC , V_{OUT}+1.5V<V_{IN}<6V, I_O=10mA,	-	-	0.2	%
Load Regulation	V_{LOAD}	Vadj=10mA<I_O<1A, (Note1,2) T_J=25ºC , V_{IN}=3.3V,	-	-	1	%
Dropout Voltage (V_{IN}-V_{OUT})	V_{DROP}	I_{OUT}=1A, ΔV_{OUT}=1%V_{OUT}	-	1.4	1.5	V
Current Limit	I_{LIM}	APE8912/3 V_{IN}=3.3V	1.1	-	-	A
Minimum Load Current		0ºC ≦T_J≦125ºC	-	3	5	mA
Thermal Rejection		T_A=25ºC, 30ms pulse	-	0.17	0.25	ºC
Ripple Rejection		f=120Hz, C_{OUT}=25uF Tantalum, I_{OUT}=1A V_{IN}=V_{OUT}+3V	-	60	70	db
Temperature Stability		I_O=10mA	-	0.5	-	%

Note1. See thermal regulation specifications for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing.

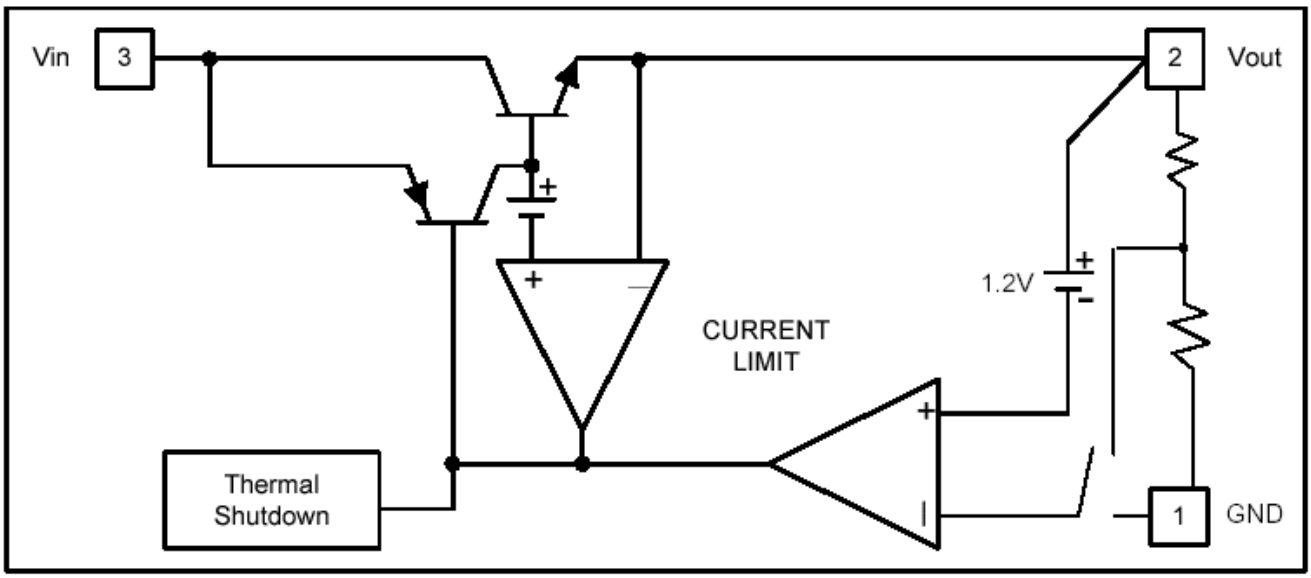
Note2. Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the difference between input and output differential and the output current. Guaranteed maximum power dissipation will not be available over the full input/output range.

Note3. Quiescent current is defined as the minimum output current required in maintaining regulation.

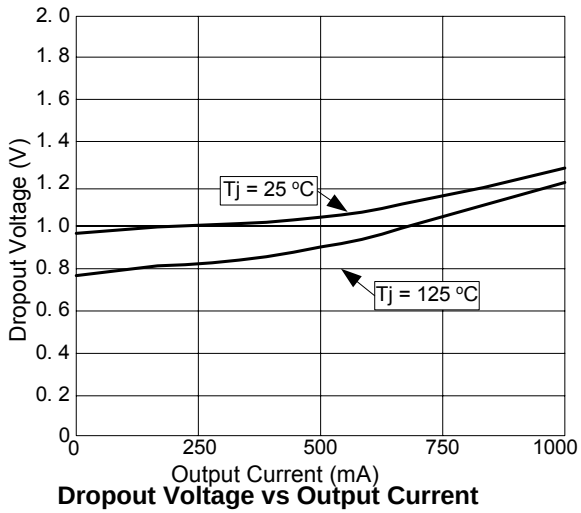
PIN DESCRIPTIONS

PIN SYMBOL	PIN DESCRIPITON
VIN	The input pin of the regulator. A minimum of 1uF connected from this pin to ground to insure that the input voltage does not sag below the minimum dropout voltage during the load transient response. This pin must always be 1.5V higher than V_{OUT} in order for the device to regulate properly.
GND	Ground
VOUT	The output of the regulator. A minimum of 1uF capacitor (10mΩ ≤ ESR ≤ 1Ω) muse be connected from this pin to to ground to insure stability.

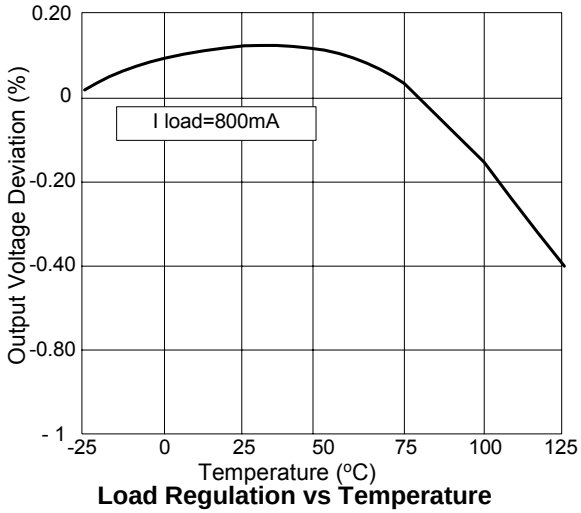
BLOCK DIAGRAM



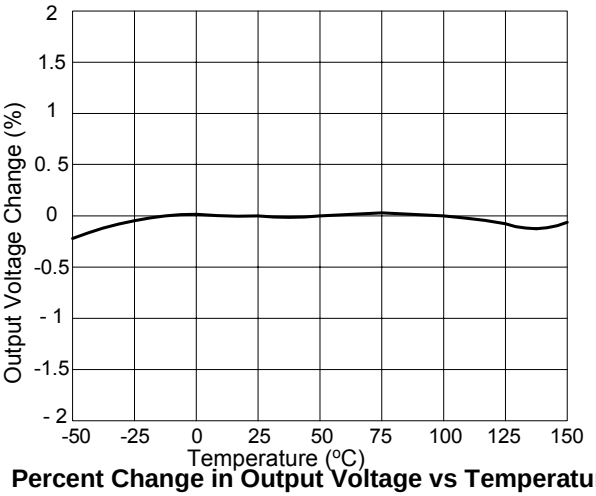
■ Typical Performance Characteristics



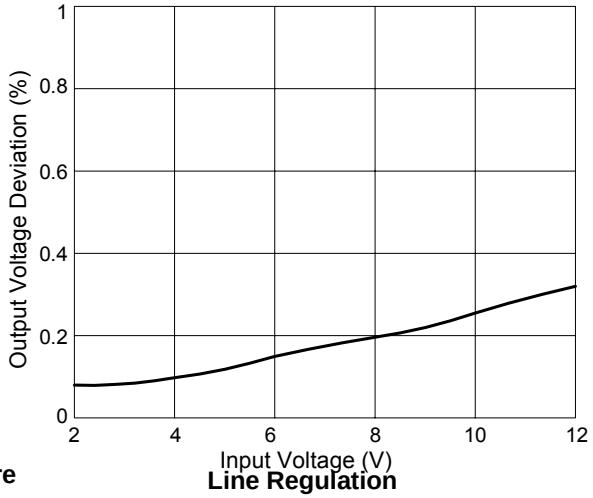
Dropout Voltage vs Output Current



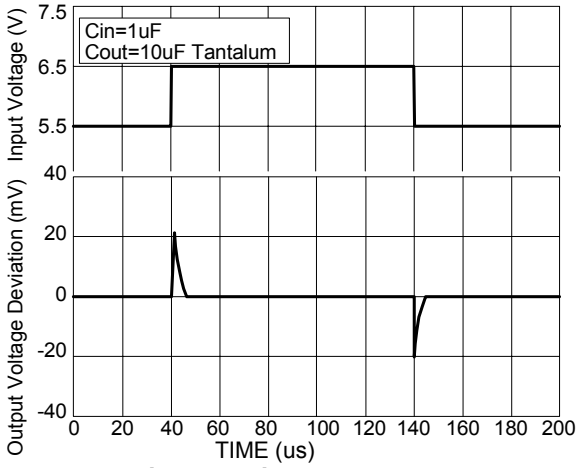
Load Regulation vs Temperature



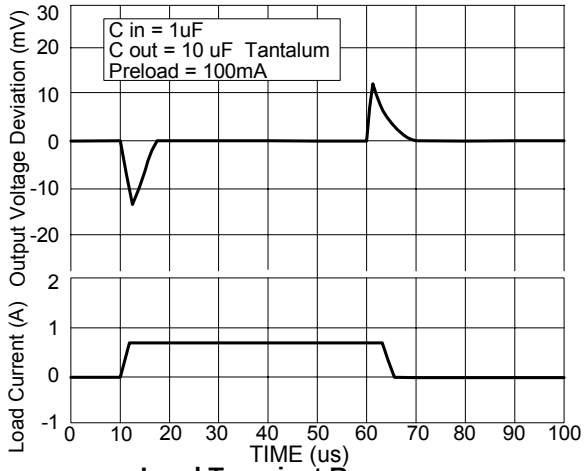
Percent Change in Output Voltage vs Temperature



Line Regulation

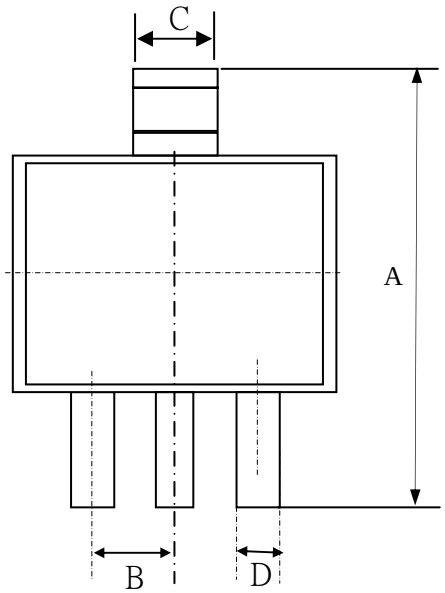


Line Transient Response

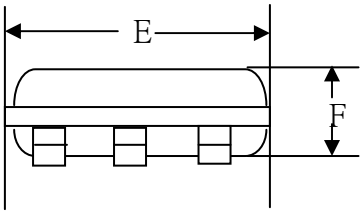


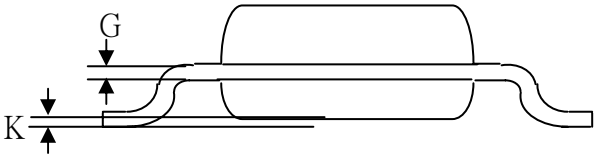
Load Transient Response

Package Outline : SOT-223



	Millimeters		
SYMBOLS	MIN	NOM	MAX
A	6.70	7.00	7.30
B	---	2.3	---
C	2.90	3.00	3.10
D	0.60	0.70	0.80
G	0.25	0.30	0.35
E	6.30	6.50	6.70
F	1.40	1.60	1.80
K	0.02	0.06	0.10

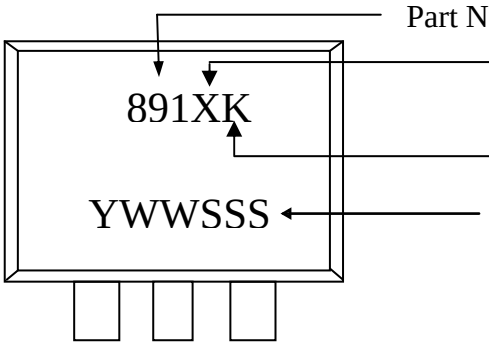




1.All Dimension Are In Millimeters.

2.Dimension Does Not Include Mold Protrusions.

Part Marking Information & Packing : SOT-223



Part Number

Output Voltage

2 : 1.2V

3 : 1.32V

Package Code

K : SOT-223 ; KR : R-type SOT-223

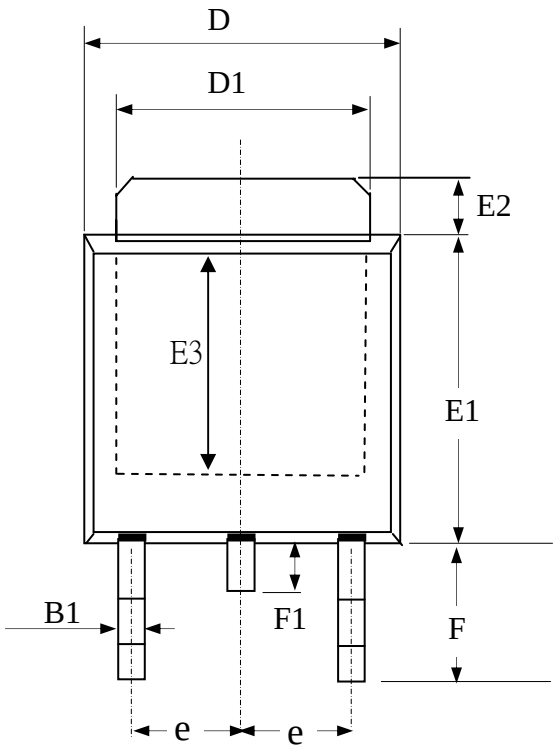
Date Code (YWWSSS)

Y：Last Digit Of The Year

WW：Week

SSS：Sequence

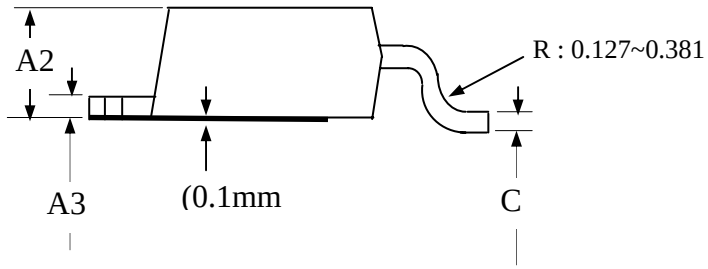
Package Outline : TO-252



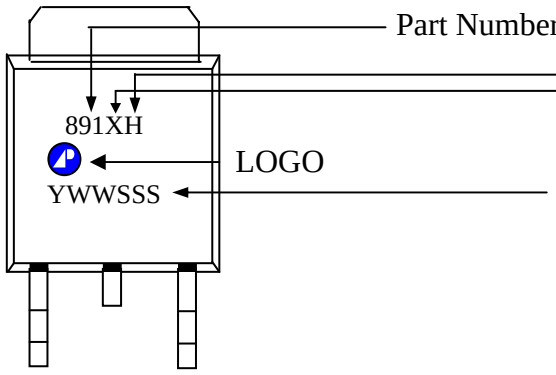
SYMBOLS	Millimeters		
	MIN	NOM	MAX
A2	1.80	2.30	2.80
A3	0.40	0.50	0.60
B1	0.40	0.70	1.00
D	6.00	6.50	7.00
D1	4.80	5.35	5.90
E3	3.50	4.00	4.50
F	2.20	2.63	3.05
F1	0.5	0.85	1.20
E1	5.10	5.70	6.30
E2	0.50	1.10	1.80
e	--	2.30	--
C	0.35	0.50	0.65

1.All Dimensions Are in Millimeters.

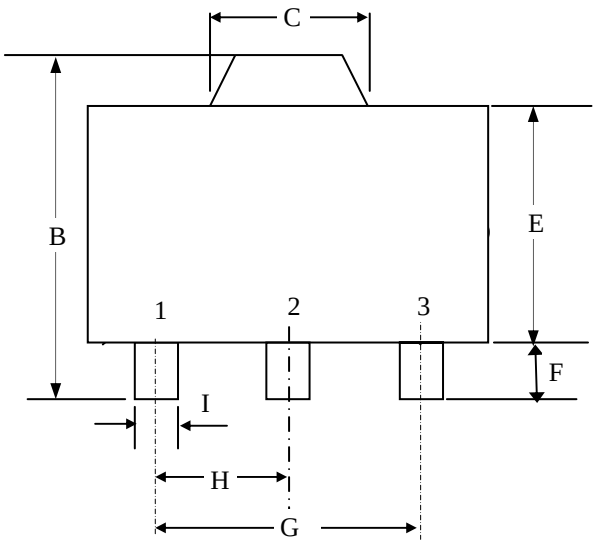
2.Dimension Does Not Include Mold Protrusions.



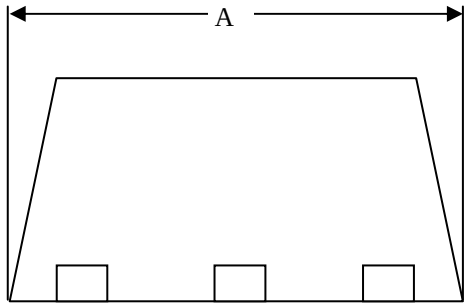
Part Marking Information & Packing : TO-252



Package Outline & Packing : SOT-89



	Millimeters		
SYMBOLS	MIN	NOM	MAX
A	4.40	-	4.60
B	4.05	-	4.25
C	1.40	-	1.75
E	2.40	-	2.60
F	0.89	-	1.20
I	0.35	-	0.55
H	----	1.50	----
G	----	3.00	----
J	1.40	-	1.60
K	0.35	-	0.43



1.All Dimensions Are in Millimeters.

2.Dimension Does Not Include Mold Protrusions.

Part Marking Information : SOT-89