600mA LOW DROPOUT LINEAR REGULATOR

FEATURES

- **Application for Extreme Low 1.0 & 1.2V Output Voltage**
- **Guaranteed 600mA Output Current**
- **Very Low Quiescent Current at about 30uA**
- **±2% Output Voltage Accuracy for 1V~3.3V**
- **Needs Only 1µF Capacitor for Stability**
- **Thermal Shutdown Protection**
- **Current Limit Protection**
- **Low-ESR Ceramic Capacitor for Output Stability**
- **Tiny SOT-23-5L & SC-70-5L, SOT-223, SOT-89(R) & TO-252 Package Type**
- **RoHS Compliant & Halogen Free**
- **High PSRR**

DESCRIPTIOON

The JTMA8862 series are low dropout, positive linear regulators with very low quiescent current. The JTMA8862 can supply 600mA output current with a low dropout voltage & very low output voltage.

The JTMA8862 regulator is able to operate with output capacitors as small as 1 µ F for stability. Other than the current limit protection JTMA8862 also offers on chip thermal shutdown feature providing protection against overload or any condition when the ambient temperature exceeds the junction temperature.

The JTMA8862 series are offering several fixed output voltage types including 1.0V ~ 1.5V.

The JTMA8862 series are available in low-profile, space-saving SOT-23-5L, SC-70-5L, SOT-223, SOT-89(R) & TO-252 packages.

APPLICATIONS

- **DVD/CD-ROMs, CD/RWs**
- **Wireless Devices**
- **LCD Modules**
- **Battery Power Systems**
- **Card Readers**
- **XDSL Routers**

TYPICAL APPLICATION

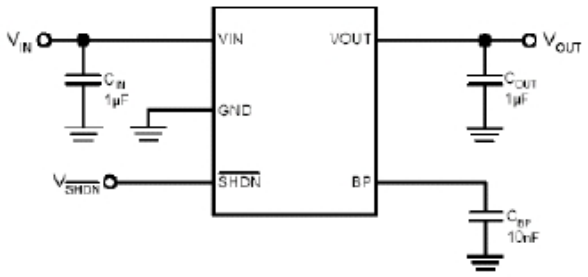


Figure 1. Typical Application Circuit of JTMA8862

Note : To prevent oscillation, it is recommended to use minimum 1uF X7R or X5R dielectric capacitors if ceramics are used as input / output capacitors.

PACKAGE ODERING INFORMATION

JTMA8862X-XX

Package Type	Vout
Y5 : SOT-23-5L	10 : 1.0V
U5 : SC-70-5L	12 : 1.2V
K : SOT-223	15 : 1.5V
G/GR : SOT-89	18 : 1.8V
H : TO-252	25 : 2.5V
	28 : 2.8V
	30 : 3.0V
	33 : 3.3V

ABSOLUTE MAXIMUM RATINGS

Input Voltage (VIN) ---------- 6V

Power Dissipation (SOT-23-5L) ---------- 0.4W

(SC-70-5L) ---------- 0.16W

(SOT-89) ---------- 0.57W

(SOT-223) ---------- 0.74W

(TO-252) ---------- 1.42W

Storage Temperature Range ---------- -65°C To 150°C

Maximum Junction Temperature ---------- 150°C

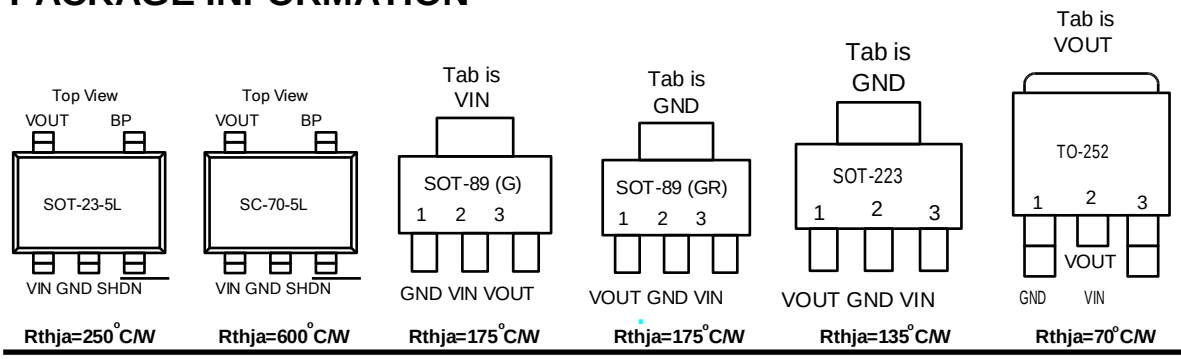
RECOMMENDED OPERATING CONDITIONS

Input Voltage (VIN) ---------- 2.8 to 5.5V

Operating Junction Temperature Range (T_J) -------- -40 to 125℃

Ambient Temperature (T_A) ---------- -40 to 85℃

PACKAGE INFORMATION



ELECTRICAL SPECIFICATIONS

(V_{IN}=V_{OUT}+1V or V_{IN}=2.8V whichever is greater, C_{IN}=1uF, C_{OUT}=1uF, T_A=25℃, unless otherwise specified)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Output Voltage Accuracy	ΔV_{OUT}	I_O= 1mA	-2	-	2	%
Current Limit	I_{LIMIT}	R_{Load}=1Ω	600	650	-	mA
Quiescent Current	I_Q	I_O= 0mA	-	30	55	μA
Dropout Voltage (Note 1)	V_{DROP}	I_O=100mA, V_O=1V	-	1200	1350	mV
		I_O=600mA, V_O=1V	-	1350	1500	
Line Regulation	ΔV_{LINE}	I_O=1mA, V_{IN}=V_{OUT} +1.5V to 5V	-	1	5	mV
Load Regulation (Note 2)	ΔV_{LOAD}	I_O=0mA to 600mA	-	50	100	mV
Ripple Rejection	PSRR	I_o=1mA, C_{OUT}=1uF, f_{RIPPLE} = 1KHz	-	-60	-	dB
		I_o=1mA, C_{OUT}=1uF, f_{RIPPLE} = 10KHz	-	-40	-	
Temperature Coefficient	TC	I_{OUT} = 1mA, V_{IN} = 5V	-	50	-	ppm/ ºC
Thermal Shutdown Temperature	TSD		-	160	-	ºC
Thermal Shutdown Hysteresis	ΔTSD		-	25	-	ºC
Shutdown Pin Current	$I_{\overline{SHDN}}$		-	-	0.1	μA
Shutdown Pin Voltage (ON)	$V_{\overline{SHDN}(ON)}$		1.4	-	-	V
Shutdown Pin Voltage (OFF)	$V_{\overline{SHDN}(OFF)}$		-	-	0.4	V

Note 1：The dropout voltage is defined as V_{IN}-V_{OUT}, which is measured when V_{OUT} drop about 100mV.

Note 2：Regulation is measured at a constant junction temperature by using 30ms current pulse and load regulation in the load range from 0mA to 600mA.

PIN DESCRIPTIONS

PIN SYMBOL	PIN DESCRIPTION
VIN	Power is supplied to this device from this pin which is required an input filter capacitor. In general, the input capacitor in the range of 1μF to 10μF is sufficient.
VOUT	The output supplies power to loads. The output capacitor is required to prevent output voltage unstable. The JTMA8862 is stable with an output capacitor 1μF or greater. The larger output capacitor will be required for application with large transit load to limit peak voltage transits, besides could reduce output noise, improve stability, PSRR.
GND	Common ground pin
BP	Reference Noise Bypass (the Bypass Capacitor ≥ 1nF)
$\overline{\text{SHDN}}$	Chip Enable (Active High)

BLOCK DIAGRAM

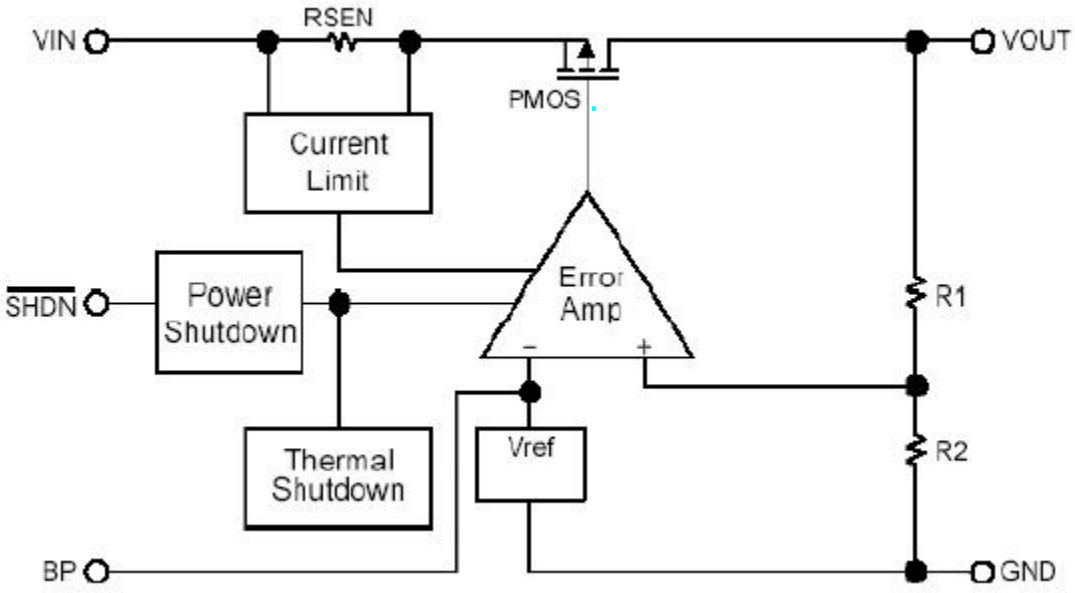
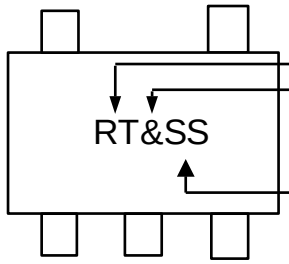


Figure 2. Block Diagram of JTMA8862

MARKING INFORMATION

SOT-23-5L



Part Number : RT

Output Voltage :

Date Code : SS

SS:2004,2008,2012…

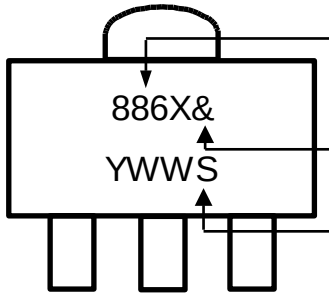
SS:2003,2007,2011…

SS:2002,2006,2010…

SS:2001,2005,2009…

Output Voltage	VOUT Code
1.0V	A
1.2V	B
1.5V	C
1.8V	D
2.5V	F
2.8V	G
3.0V	H
3.3V	I

SOT-89



Part Number :

8862 : JTMA8862G

886B : JTMA8862GR

Output Voltage :

Date Code (YWWS)

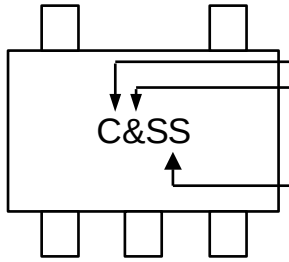
Y : Year

WW : Week

S : Sequence

Output Voltage	VOUT Code
1.0V	A
1.2V	B
1.5V	C
1.8V	D
2.5V	F
2.8V	G
3.0V	H
3.3V	I

SC-70-5L



Part Number : C

Output Voltage :

Date Code : SS

SS:2004,2008,2012…

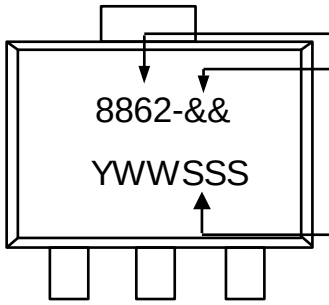
SS:2003,2007,2011…

SS:2002,2006,2010…

SS:2001,2005,2009…

Output Voltage	VOUT Code
1.0V	A
1.2V	B
1.5V	C
1.8V	D
2.5V	F
2.8V	G
3.0V	H
3.3V	I

SOT-223



Part Number

Output Voltage :

Date Code (YWWSSS)

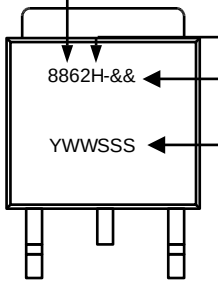
Y : Year

WW : Week

SSS : Sequence

Output Voltage	VOUT Code
1.0V	10
1.2V	12
1.5V	15
1.8V	18
2.5V	25
2.8V	28
3.0V	30
3.3V	33

TO-252



Part Number

Package Code

Output Voltage :

Date Code (YWWSSS)

Y:Year

WW：Week

SSS：Sequence

Output Voltage	VOUT Code
1.0V	10
1.2V	12
1.5V	15
1.8V	18
2.5V	25
2.8V	28
3.0V	30
3.3V	33