



**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

**DESCRIPTION**

The APE8862 series are low dropout, positive linear regulators with very low quiescent current. The APE8862 can supply 600mA output current with a low dropout voltage & very low output voltage.

The APE8862 regulator is able to operate with output capacitors as small as 1 µF for stability. Other than the current limit protection APE8862 also offers on chip thermal shutdown feature providing protection against overload or any condition when the ambient temperature exceeds the junction temperature.

The APE8862 series are offering several fixed output voltage types including 1.0V ~ 1.5V.

The APE8862 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**

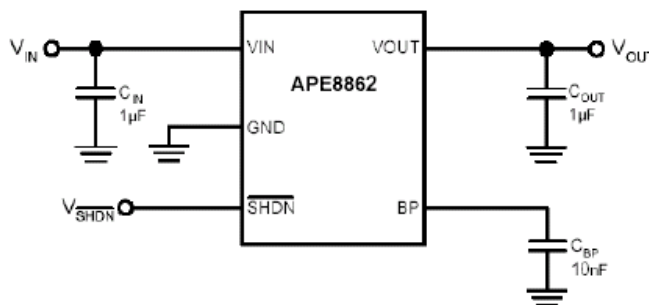


Figure 1. Typical Application Circuit of APE8862

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 ORDERING INFORMATION**

APE8862X-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

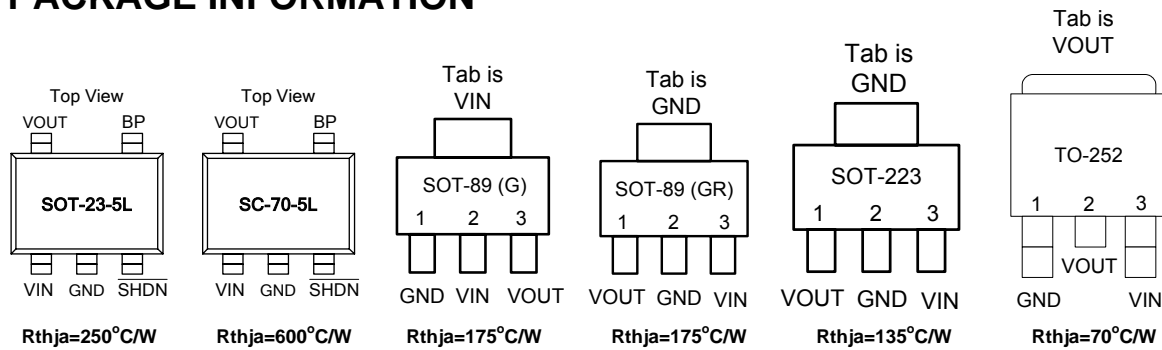
**ABSOLUTE MAXIMUM RATINGS**

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 <sub>J</sub> ) -----	-40 to 125°C
Ambient Temperature (T <sub>A</sub> ) -----	-40 to 85°C

**PACKAGE INFORMATION**



**ELECTRICAL SPECIFICATIONS**

(V<sub>IN</sub>=V<sub>OUT</sub>+1V or V<sub>IN</sub>=2.8V whichever is greater, C<sub>IN</sub>=1uF, C<sub>OUT</sub>=1uF, T<sub>A</sub>=25°C, unless otherwise specified)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Output Voltage Accuracy	ΔV <sub>OUT</sub>	I <sub>O</sub> = 1mA	-2	-	2	%
Current Limit	I <sub>LIMIT</sub>	R <sub>Load</sub> =1Ω	600	650	-	mA
Quiescent Current	I <sub>Q</sub>	I <sub>O</sub> = 0mA	-	30	55	μA
Dropout Voltage (Note 1)	V <sub>DROP</sub>	I <sub>O</sub> =100mA, V <sub>O</sub> =1V	-	1200	1350	mV
		I <sub>O</sub> =600mA, V <sub>O</sub> =1V	-	1350	1500	
Line Regulation	ΔV <sub>LINE</sub>	I <sub>O</sub> =1mA, V <sub>IN</sub> =V <sub>OUT</sub> +1.5V to 5V	-	1	5	mV
Load Regulation (Note 2)	ΔV <sub>LOAD</sub>	I <sub>O</sub> =0mA to 600mA	-	50	100	mV
Ripple Rejection	PSRR	I <sub>O</sub> =1mA, C <sub>OUT</sub> =1uF, f <sub>RIPPLE</sub> = 1KHZ	-	-60	-	dB
		I <sub>O</sub> =1mA, C <sub>OUT</sub> =1uF, f <sub>RIPPLE</sub> = 10KHZ	-	-40	-	
Temperature Coefficient	TC	I <sub>OUT</sub> = 1mA, V <sub>IN</sub> = 5V	-	50	-	ppm/ °C
Thermal Shutdown Temperature	TSD		-	160	-	°C
Thermal Shutdown Hysteresis	ΔTSD		-	25	-	°C
Shutdown Pin Current	I <sub>SHDN</sub>		-	-	0.1	μA
Shutdown Pin Voltage (ON)	V <sub>SHDN(ON)</sub>		1.4	-	-	V
Shutdown Pin Voltage (OFF)	V <sub>SHDN(OFF)</sub>		-	-	0.4	V

Note 1 : The dropout voltage is defined as V<sub>IN</sub>-V<sub>OUT</sub>, which is measured when V<sub>OUT</sub> 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
<b>VIN</b>	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 1 $\mu$ F to 10 $\mu$ F is sufficient.
<b>VOUT</b>	The output supplies power to loads. The output capacitor is required to prevent output voltage unstable. The APE8862 is stable with an output capacitor 1 $\mu$ F 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.
<b>GND</b>	Common ground pin
<b>BP</b>	Reference Noise Bypass ( the Bypass Capacitor $\geq$ 1nF )
<b>SHDN</b>	Chip Enable (Active High)

**BLOCK DIAGRAM**

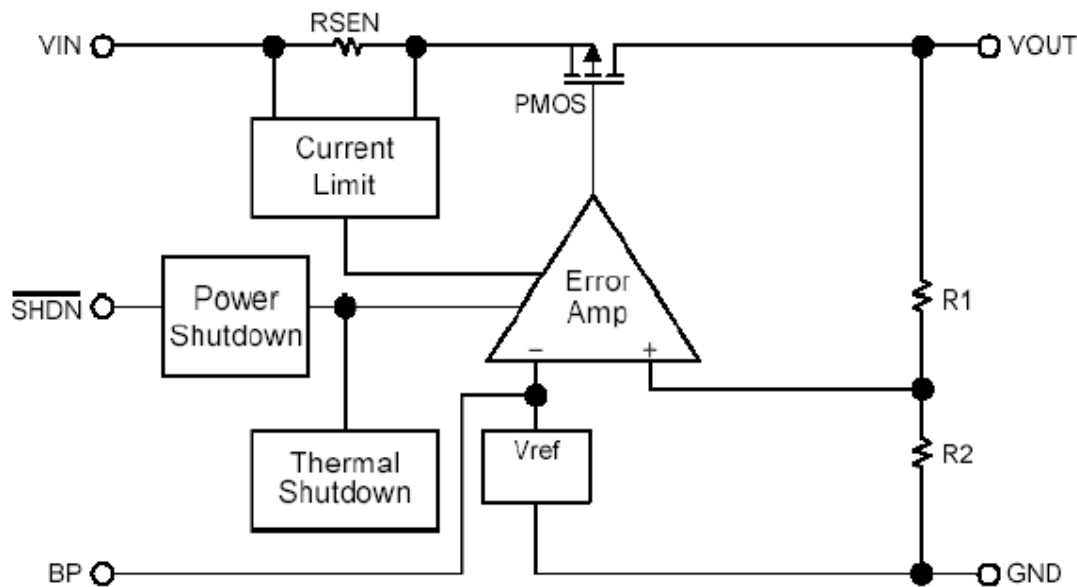
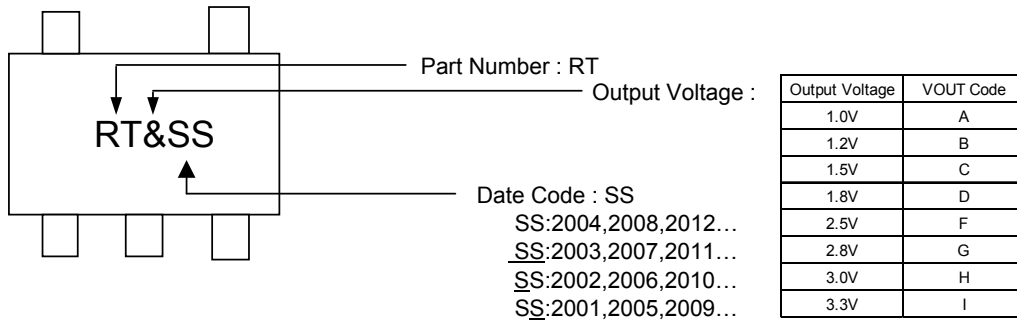


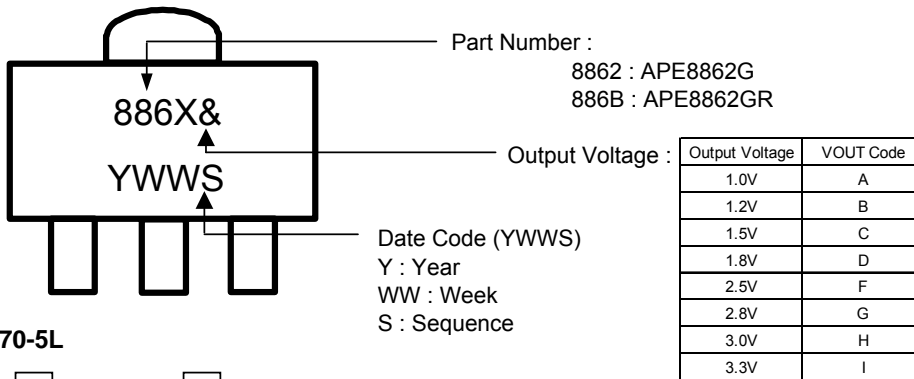
Figure 2. Block Diagram of APE8862

**MARKING INFORMATION**

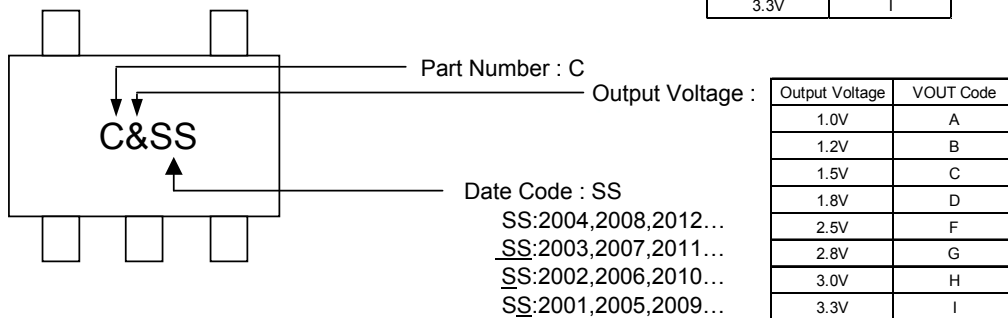
**SOT-23-5L**



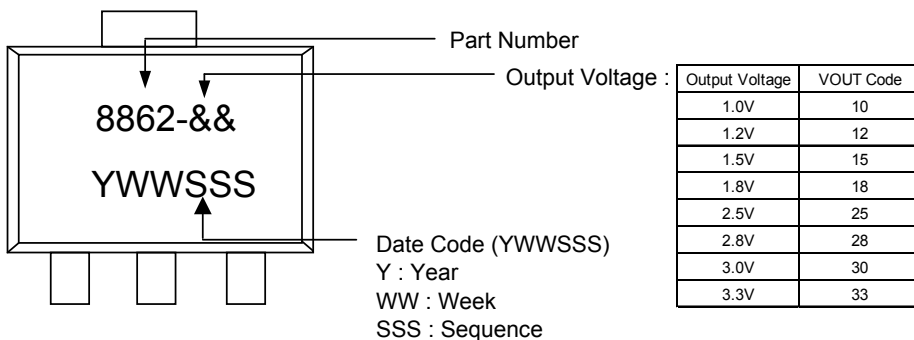
**SOT-89**



**SC-70-5L**



**SOT-223**



**TO-252**

