300mA HIGH PSRR, LOW NOISE, LDO REGULATORS

FEATURES

- **Low, Quiescent Current**
- **Guaranteed 300mA Output Current**
- **Over-Temperature Protection and Short-Circuit Protection**
- **Fixed Mode : 3.9V**
- **Ultra Low Supply Shutdown Current**
- **Stable with Low Cost Ceramic Capacitors**
- **RoHS Compliant & Halogen Free**
- **High PSRR**

APPLICATIONS

- **Cellular Phones**
- **Notebook Computers**
- **PDAs**
- **Hand-Held Devices**

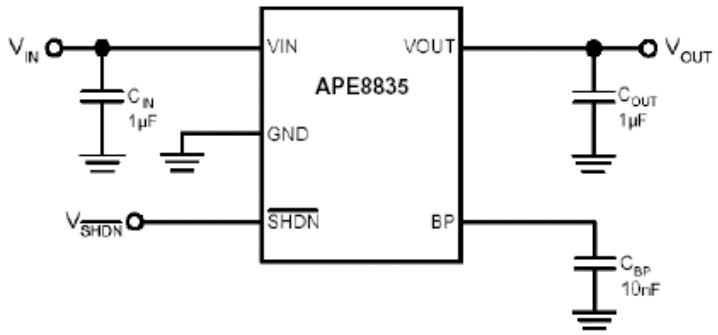
DESCRIPTION

APE8835 series are the positive linear regulators with very low quiescent current, can supply 300mA output current with a low dropout voltage.

Current limit is designed to ensure specified output current and controlled short-circuit current. On-chip over temperature limiting provides protection against overload that would create excessive junction temperatures.

APE8835 series may offer several fixed output voltage types and low-profile ,space-saving SOT-23-5L package.

TYPICAL APPLICATION



ORDERING INFORMATION

APE8835□□-□□

Package	Output Voltage
Y5 : SOT-23-5L	**39 : 3.9V**

ABSOLUTE MAXIMUM RATINGS (at T_A=25°C)

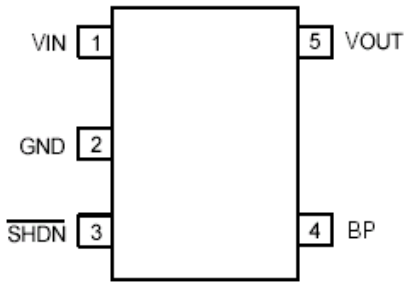
Input Voltage (VIN)	6V
Power Dissipation (SOT-23-5L)	0.4W
Storage Temperature Range	-65 to 150°C
Maximum Junction Temperature	150°C

RECOMMENDED OPERATING CONDITIONS

Input Voltage (VIN)	5V to 5.5V
Operating Junction Temperature Range	-40 to 125°C
Ambient Temperature	-40 to 85°C

PACKAGE INFORMATION

SOT-23-5L



Rthja=250°C/W

ELECTRICAL SPECIFICATIONS

(V_{IN}=5V, V_{SHDN}=V_{IN}, T_A=25℃, C_{IN}=C_{OUT}=1μF, unless otherwise noted.)

PARAMETER	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Output Voltage Accuracy(fixed)			-3.0	-	3.0	%
Max. Output Current			300	-	-	mA
Current Limit	I_{LM}		400	550	-	mA
Short Circuit Current	I_{SC}	V_{OUT}<1.0V	-	500	-	mA

ELECTRICAL SPECIFICATIONS(Cont.)

PARAMETER	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Ground Pin Current	I_Q	I_{OUT}=0mA, V_{IN}=5V	-	80	-	uA
Dropout Voltage(Note1)	V_{DROP}	V_{OUT}=3.9V,I_{OUT}=300mA	-	0.25	0.5	V
Line Regulation	ΔV_{LNR}	V_{IN}=V_{OUT}+0.5V to 5.5V,I_{OUT}=10mA	-	0.06	0.12	%/V
Load Regulation(Note2)	ΔV_{LDR}	I_{OUT}=10mA to 300mA	-	-	0.02	%/mA
Ripple Rejection	PSRR	I_O=1mA, C_{OUT}=1μF, f_{RIPPLE}=1KHz	-	-65	-	dB
		f_{RIPPLE}=10KHz	-	-40	-	
SHUTDOWN						
SHDN Input Thershold	V_{IH}	Regulator enabled	1.5	-	-	V
	V_{IL}	Regulator shutdown	-	-	0.4	
SHDN Input Bias Current	$I_{\overline{SHDN}}$	$V_{\overline{SHDN}}$=V_{IN}, T_A=25°C	-	0.003	0.1	uA
Shutdown Supply Current	$I_{Q\overline{SHDN}}$	V_{OUT}=0V, T_A=25°C	-	0.2	1	uA
THERMAL PROTECTION						
Thermal Shutdown Temperature	$T_{\overline{SHDN}}$		-	160	-	°C
Thermal Shutdown Hysteresis	$\Delta T_{\overline{SHDN}}$		-	32	-	°C

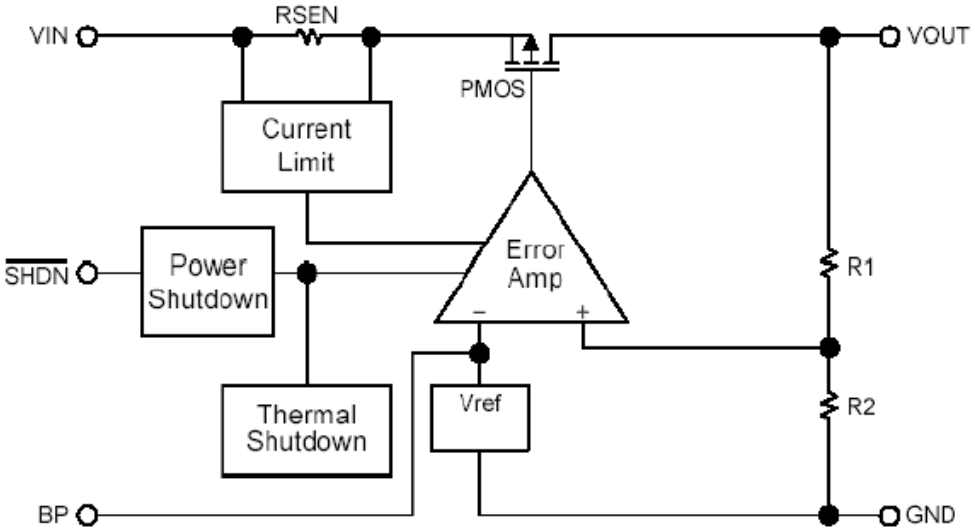
Note1. 1：The dropout voltage is defined as VIN-VOUT, which is measured when VOUT drop about 100mV. junction temperature as close to ambient as possible.

Note2. Regulation is measured at a constant junction temperature by using pulse current and load regulation in the load range from 0mA to 300mA.

PIN DESCRIPTIONS

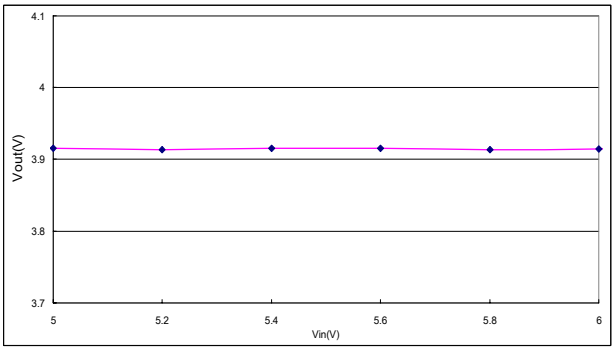
PIN SYMBOL	PIN DESCRIPTION
VIN	Power is supplied to this device from this pin which is required an input filter capacitor. In general, the input capacitor in the range of 1μF to 10μF is sufficient.
GND	Common ground pin
$\overline{SHDN}$	Chip Enable (Active High)
BP	Reference Noise Bypass (the Bypass Capacitor ≧ 1nF)
VOUT	The output supplies power to loads. The output capacitor is required to prevent output voltage unstable. The APE8835 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.

BLOCK DIAGRAM

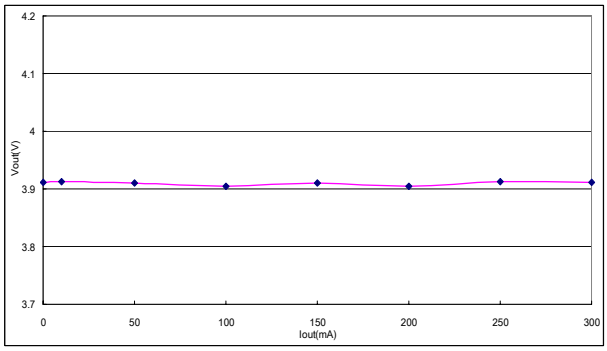


TYPICAL PERFORMANCE CHARACTERISTICS

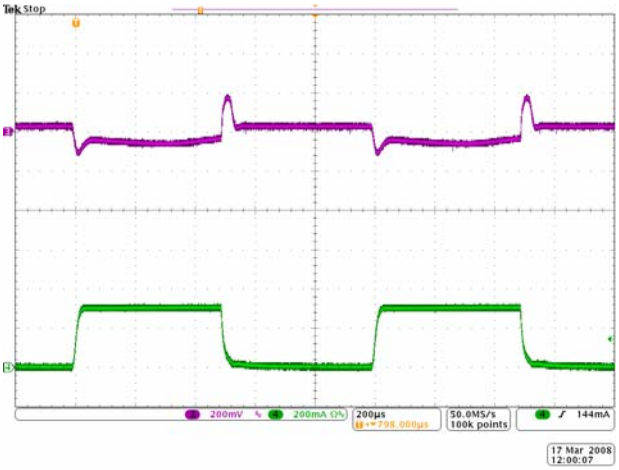
Line Regulation



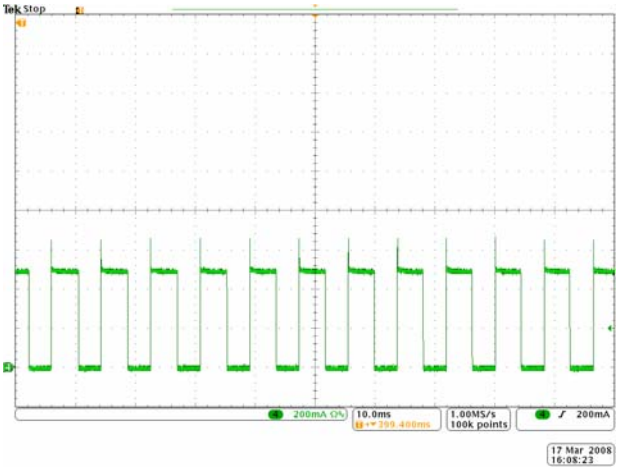
Load Regulation



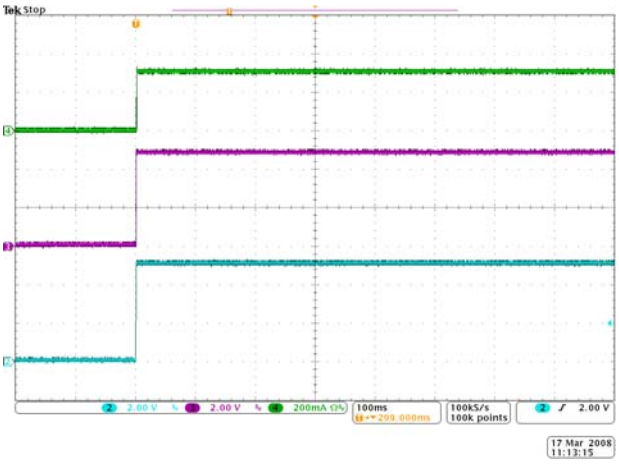
Load Transient



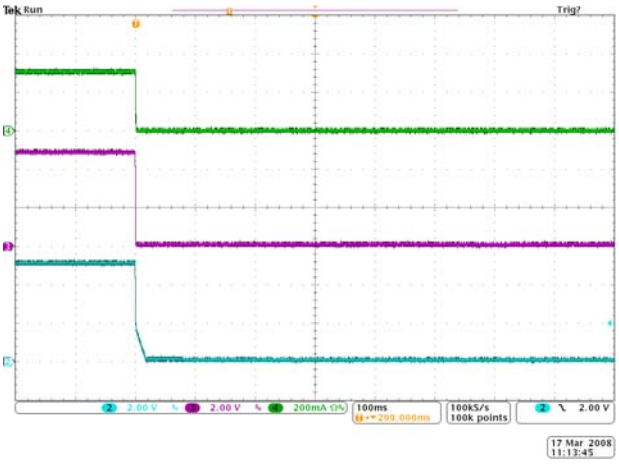
Short Circuit Current



Turn-on

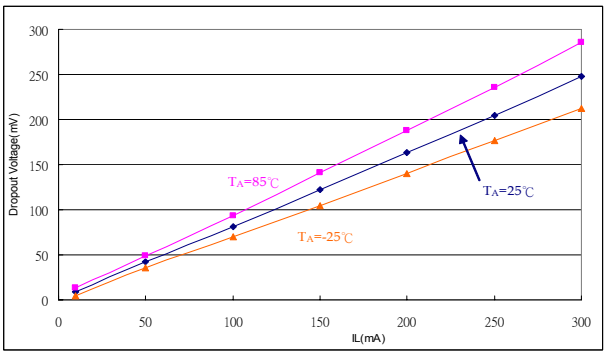


Turn-off

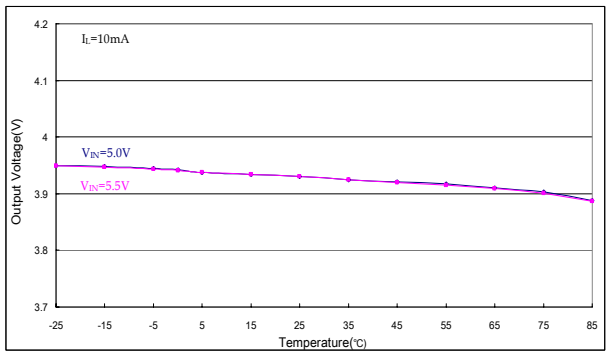


TYPICAL PERFORMANCE CHARACTERISTICS(Cont.)

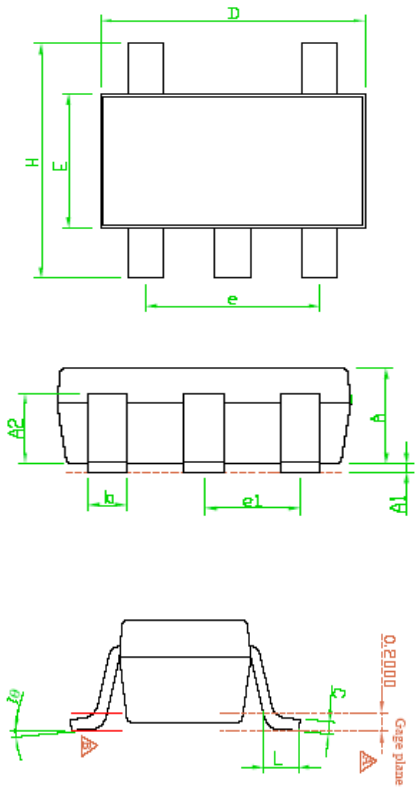
Dropout Voltage vs. I_L



Output Voltage vs. Temperature



Package Outline : SOT-23-5L



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	1.00	1.10	1.30
A1	0.00	---	0.10
A2	0.70	0.80	0.90
b	0.35	0.40	0.50
C	0.10	0.15	0.25
D	2.70	2.90	3.10
E	1.50	1.60	1.80
e	---	1.90(TYP)	---
H	2.60	2.80	3.00
L	0.37	---	---
θ1	1°	5°	9°
e2	---	0.95(TYP)	---

Note 1：Package Body Sizes Exclude Mold Flash Protrusions or Gate Burrs.

Note 2：Tolerance ± 0.1000 mm(4mil) Unless Otherwise Spe- cified.

Note 3：Coplanarity：0.1000 mm

Note 4：Dimension L Is Measured in Gage plane.

Part Marking Information & Packing : SOT-23 -5L

