



DUAL 600mA LDO REGULATOR WITH ENABLE FUNCTION

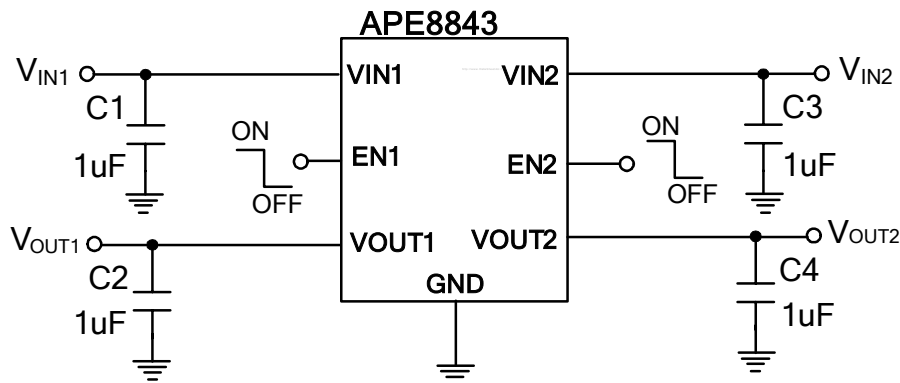
FEATURES

- **Input Voltage Range :**
Channel 1 : 4.2V to 6V
Channel 2 : 3.2V to 6V
- **Low Quiescent Current is 30uA/per Channel (typ.)**
- **Tight Load and Line Regulation**
- **Fast Transient Response**
- **Current Limit and Thermal Shutdown Protection**
- **Only low-ESR Ceramic Capacitors Required for Stability**
- **Available in the ESOP-8 Pb-Free Package**
- **Halogen Free Product**

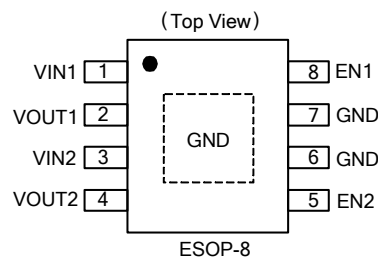
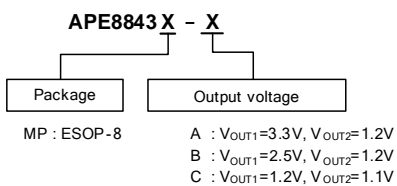
DESCRIPTION

The APE8843 is an efficient, precise dual-channel CMOS LDO regulator optimized for ultra-low-quiescent applications. Regulators output1 and output2 are capable of sourcing 600mA of output current. The regulators are stable with output capacitors as low as 1uF, including current limit, thermal shutdown protection, fast transient response, low dropout voltage, high output accuracy, current limiting protection, and high ripple rejection ratio. The APE8843 regulators are able to support individual On/Off function. The APE8843 regulators are available in used ESOP-8 package.

TYPICAL APPLICATION



PACKAGE / ORDERING INFORMATION





ABSOLUTE MAXIMUM RATINGS

V_{IN1}, V_{IN2} Pin Voltage ($V_{IN1,2}$)	6.5V
Output Voltage (V_{OUT1}/V_{OUT2})	GND - 0.3 to $V_{IN} + 0.3V$
Enable Voltage (V_{EN1}/V_{EN2})	GND - 0.3 to $V_{IN} + 0.3V$
Power Dissipation (P_D)	Internally Limited
Storage Temperature Range (T_{ST})	-65°C To 150°C
Operating Junction Temperature Range (T_{OPJ})	-40°C To + 125°C
Junction Temperature (T_J)	-40°C To + 150°C
Thermal Resistance from Junction to case (R_{thjc})	15°C/W
Thermal Resistance from Junction to ambient (R_{thja}) ^{Note}	45°C/W

Note: R_{thja} is measured with the PCB copper area of approximately 1 in²(Multi-layer). That need connect to exposed pad.

RECOMMENDED OPERATING CONDITIONS

Input Voltage ($V_{IN1,2}$)	3.2 to 6V
Operating Junction Temperature Range (T_J)	-40 to 125°C
Ambient Temperature (T_A)	-40 to 85°C

ELECTRICAL SPECIFICATIONS

($V_{IN}=V_{OUT}+1.5V$ or $V_{IN}=3.2V$ whichever is greater, $C_{IN}=1\mu F$, $C_{OUT}=1\mu F$, $T_A=25^\circ C$, unless otherwise specified)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Input Voltage	V_{IN1}		4.2	-	6	V
	V_{IN2}		3.2	-	6	
Enable Input Threshold	$V_{EN1/2H}$	Each channel	1.4	-	-	V
	$V_{EN1/2L}$		-	-	0.4	
Shutdown Current	$I_{SD1,2}$		-	-	5	uA
Temperature Shutdown	$T_{SD1,2}$		-	160	-	°C
Temperature Shutdown Hysteresis	$\delta T_{SD1,2}$		-	35	-	°C

Regulator1

Output Voltage Accuracy	V_{OUT1}	$I_{OUT1}=1mA$ (APE8843MP-A)	3.234	3.3	3.366	V
		$I_{OUT1}=1mA$ (APE8843MP-B)	2.45	2.5	2.55	
		$I_{OUT1}=1mA$ (APE8843MP-C)	1.176	1.2	1.224	
Dropout Voltage (Note1)	V_{DRO1-A}	$I_O=100mA, V_O=3.3V$	-	250	400	mV
		$I_O=600mA, V_O=3.3V$	-	800	900	
	V_{DRO1-B}	$I_O=100mA, V_O=2.5V$	-	250	300	mV
		$I_O=600mA, V_O=2.5V$	-	1000	1200	
	V_{DRO1-C}	$V_O=1.2V$ guarantee by $V_{IN} \geq 3.2V$				
Quiescent Current	I_{Q1}	$I_O=0mA$	-	30	55	μA
Line Regulation	V_{Line1}	$I_O=1mA, V_{IN}$ test condition to 6V	-	1	5	mV
Load Regulation (Note2)	ΔV_{LOAD1}	$I_O=0mA$ to 600mA	-	50	100	mV
Current Limit	I_{LIMIT1}	$R_{Load}=1\Omega$	600	650	-	mA
Ripple Rejection	PSRR1	$I_O=1mA, C_{OUT}=1\mu F, f_{RIPPLE} = 1KHZ$	-	-60	-	dB
		$I_O=1mA, C_{OUT}=1\mu F, f_{RIPPLE} = 10KHZ$	-	-40	-	

Regulator2

Output Voltage Accuracy	V_{OUT2}	$I_{OUT2}=1mA$ (APE8843MP-A)	1.176	1.2	1.224	V
		$I_{OUT2}=1mA$ (APE8843MP-B)	1.176	1.2	1.224	
		$I_{OUT2}=1mA$ (APE8843MP-C)	1.078	1.1	1.122	



PIN DESCRIPTIONS

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Dropout Voltage (Note1)	V_{DRO2}	$V_O=1.2V$ guarantee by $V_{IN} \geq 3.2V$				
Quiescent Current	I_{Q2}	$I_O=0mA$	-	30	55	μA
Line Regulation	V_{Line2}	$I_O=1mA$, V_{IN} test condition to 6V	-	1	5	mV
Load Regulation (Note2)	ΔV_{LOAD2}	$I_O=0mA$ to 600mA	-	50	100	mV
Current Limit	I_{LIMIT2}	$R_{Load}=1\Omega$	600	650	-	mA
Ripple Rejection	PSRR2	$I_O=1mA$, $C_{OUT}=1\mu F$, $f_{RIPPLE} = 1KHZ$	-	-60	-	dB
		$I_O=1mA$, $C_{OUT}=1\mu F$, $f_{RIPPLE} = 10KHZ$	-	-40	-	

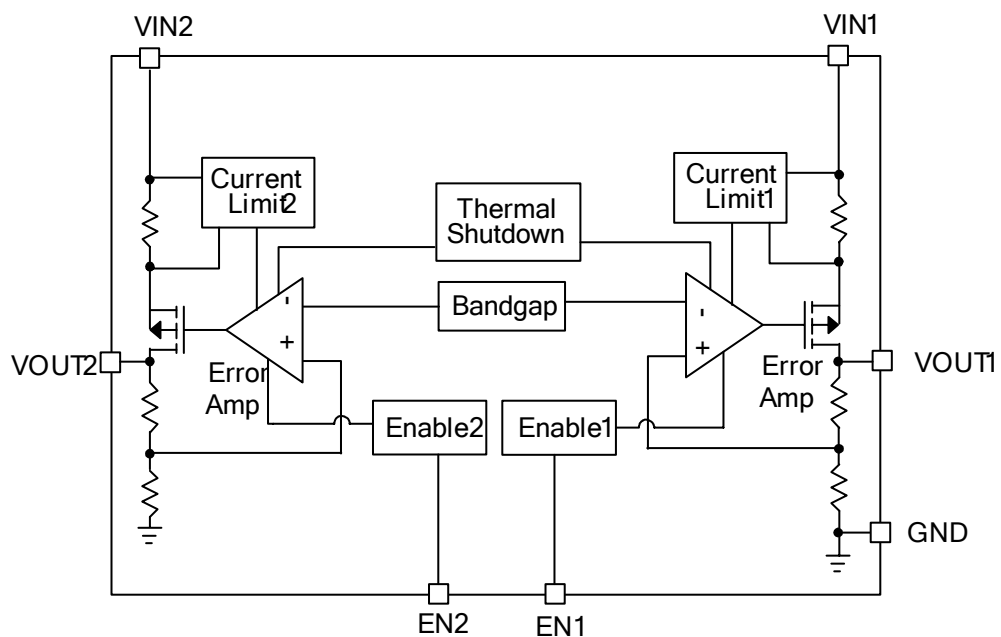
Note 1 : The dropout voltage is defined as $V_{IN}-V_{OUT}$, which is measured when V_{OUT} drop about 100mV.

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
GND	Common Ground
EN1	Channel 1 Shutdown Control Pin
EN2	Channel 2 Shutdown Control Pin
VOUT1	Channel1 Output Voltage
VOUT2	Channel2 Output Voltage
VIN1	Channel1 input Voltage
VIN2	Channel2 input Voltage

BLOCK DIAGRAM





MARKING INFORMATION

ESOP-8

