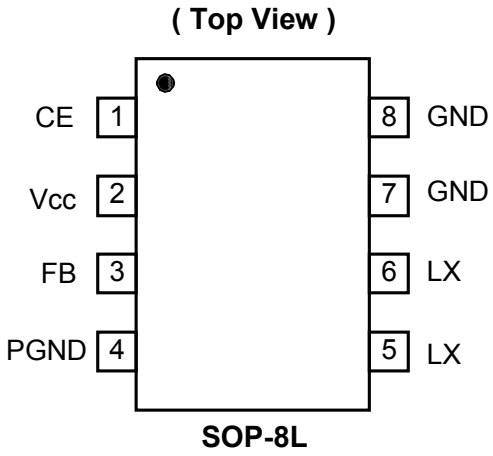
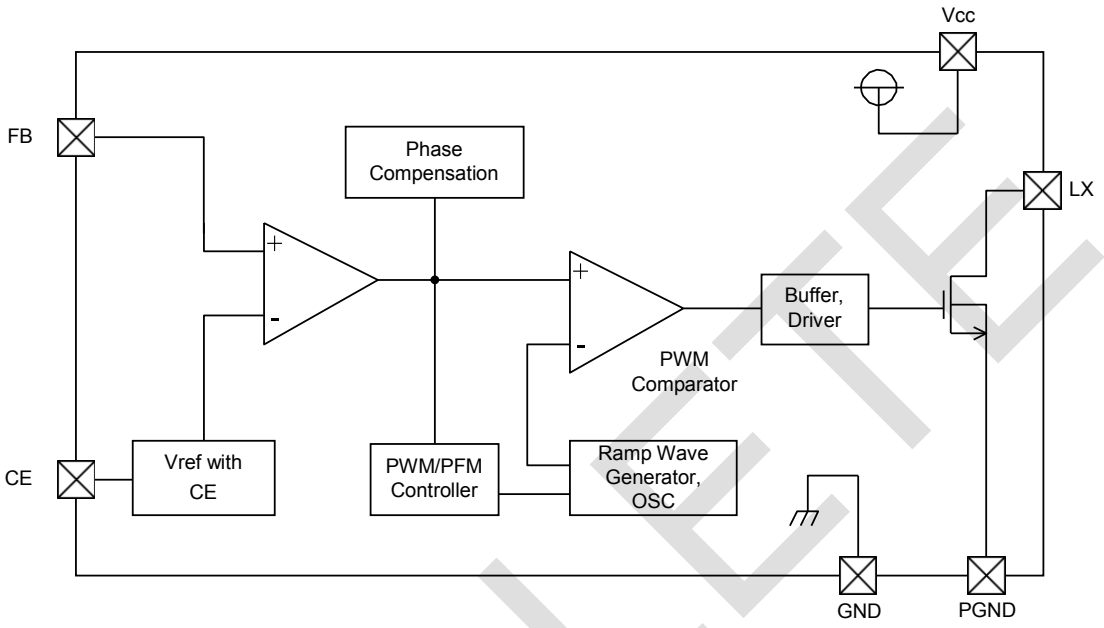
Pin Assignments



Pin Descriptions

Pin Name	Pin Number	Description
CE	1	Chip Enable: H: Enable L: Disable
Vcc	2	IC signal power supply pin
FB	3	Feedback pin
PGND	4	Power MOSFET GND
LX	5, 6	Switch Pin. Connect external inductor/diode here. Minimize trace area at this pin to reduce EMI.
GND	7, 8	GND Pin

Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Ratings	Units
V_{CC}	V_{IN} Pin Voltage	-0.3 ~ 7	V
V_{FB}	FB Pin Voltage	-0.3 ~ V_{CC} +0.3	V
V_{CE}	CE Pin Voltage	-0.3 ~ V_{CC} +0.3	V
V_{SW}	Switch Voltage (LX to GND)	-0.3 ~ 18	V
I_{LX}	Switch Current	-3 ~ 0.2	A
P_D	Continuous Total Power Dissipation	1200	mW
T_{OPR}	Operating Ambient Temperature	-20 ~ +80	°C
T_{STG}	Storage Temperature	-20 ~ +125	°C

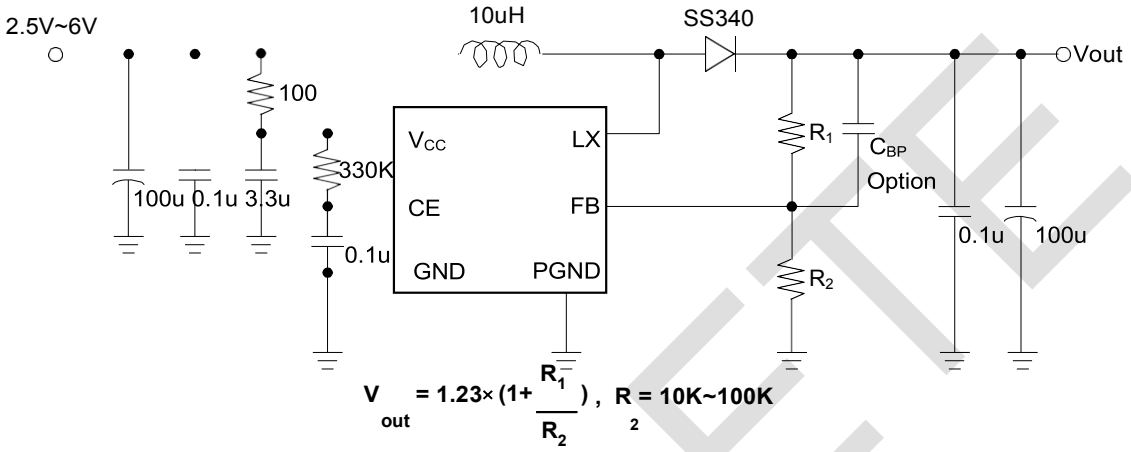
Electrical Characteristics

AP1609 (F_{OSC} = 300kHz, V_{OUT} = 5V) T_A = 25°C

Symbol	Parameter	Conditions	Min	Typ.	Max	Units
V_{FB}	FB Voltage		1.20	1.23	1.26	V
V_{CC}	Input Voltage		2.5	-	6	V
V_{OUT}	Output Voltage		3.0	-	17	V
I_{OUT}	Maximum Switching Output Current		2.4	-	-	A
$R_{DS\ (ON)}$	Drain-Source On-State Resistance	I_D = 2.4A	-	100	-	mΩ
I_{CCQ}	Quiescent Current	No Load, FB = 2V, CE = High	-	80	130	μA
I_{SD}	Shutdown Current	No Load, CE = Low	-	1	-	μA
Fosc	Oscillator Frequency	Measuring of EXT Waveform, V_{IN} = Output Voltage +0.3V	240	300	360	kHz
MAXDTY	Maximum Duty Ratio		80	-	-	%
PFMDTY	PFM Duty Ratio	No Load	15	25	35	%
V_{CEH}	CE “High” Voltage	No External Components, V_{FB} = 0V, Apply 0.65V_{CC} (min.) to CE, Chip Enable	0.65	-	-	*V_{CC}
V_{CEL}	CE “Low” Voltage	Same as V_{CEH}, Chip Disable	-	-	0.20	*V_{CC}
EFFI	Efficiency		-	91	-	%

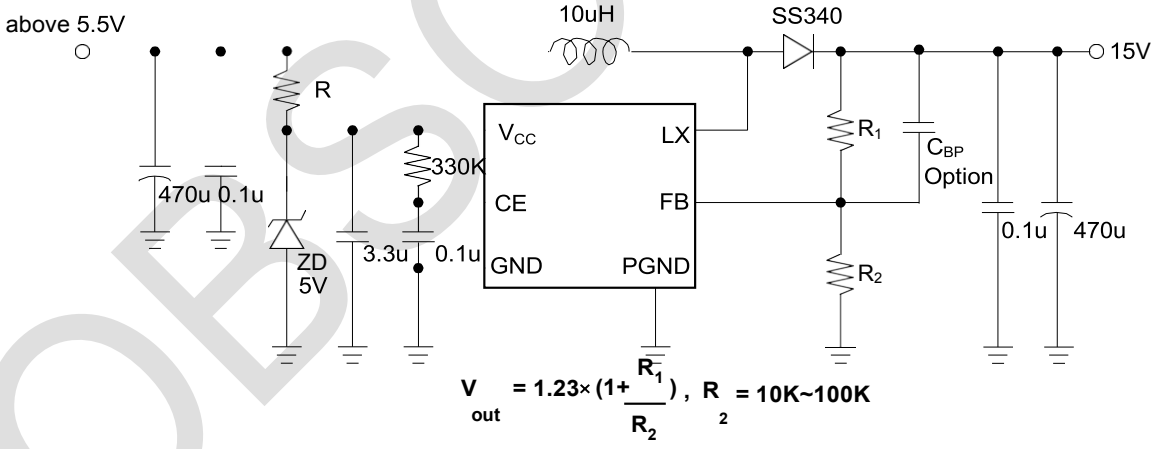
Typical Application Circuit

(1) Normal Circuit



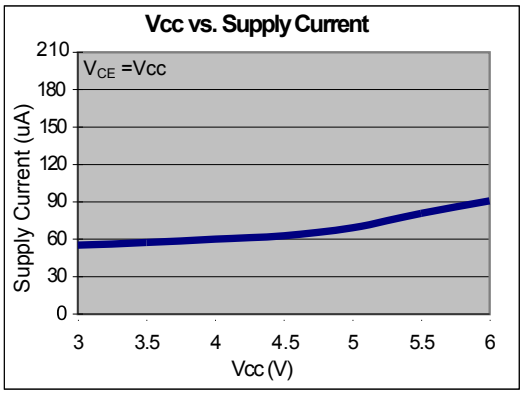
$$V_{out} = 1.23 \times (1 + \frac{R_1}{R_2}),\ R_2 = 10K \sim 100K$$

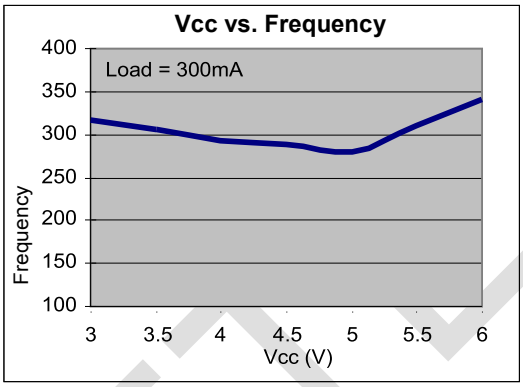
(2) HV Circuit

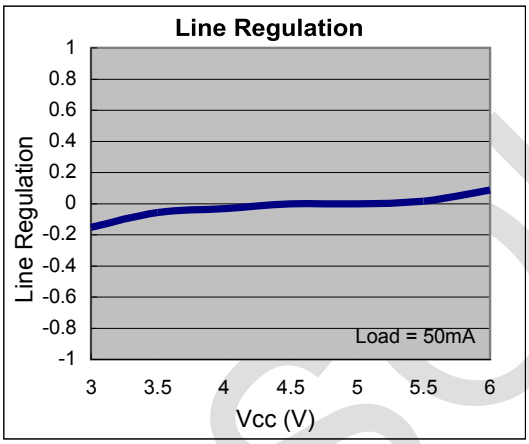


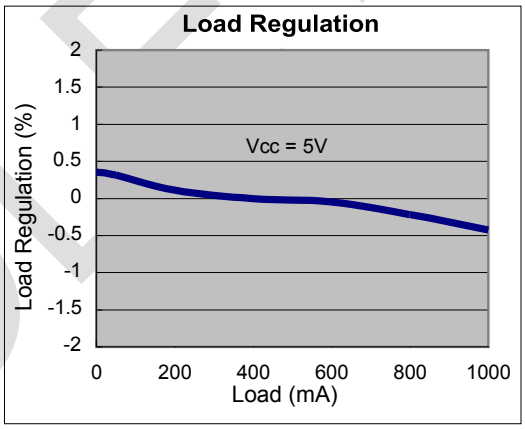
$$V_{out} = 1.23 \times (1 + \frac{R_1}{R_2}),\ R_2 = 10K \sim 100K$$

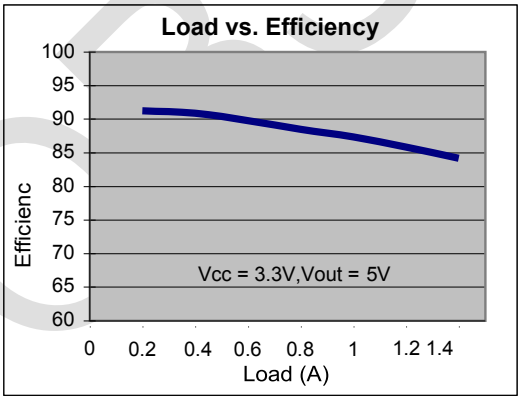
Typical Performance Characteristics

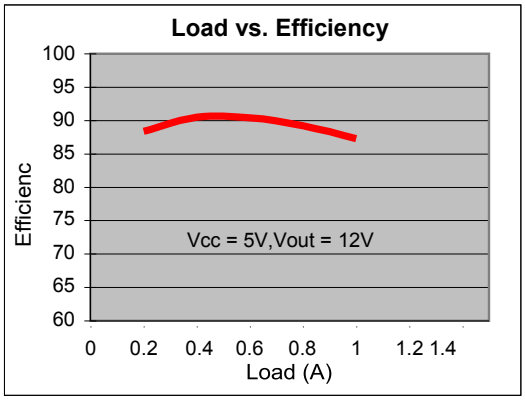




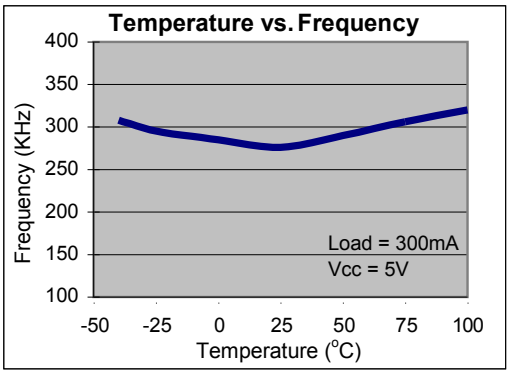


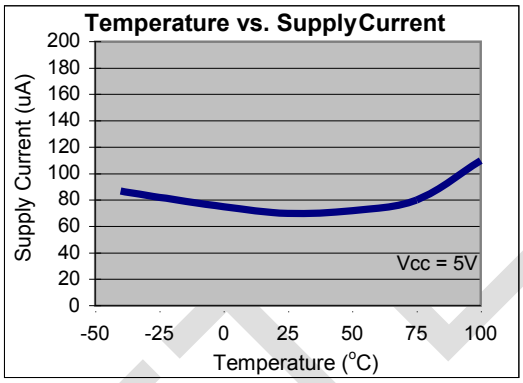


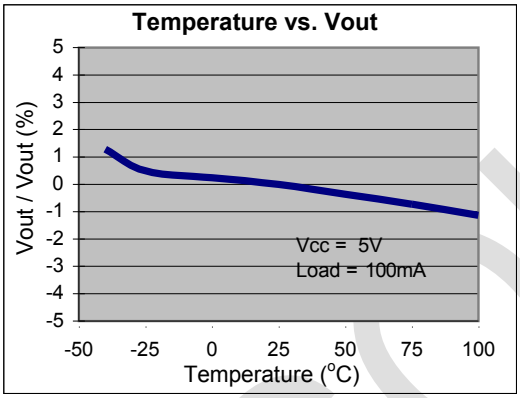




Typical Performance Characteristics (Continued)

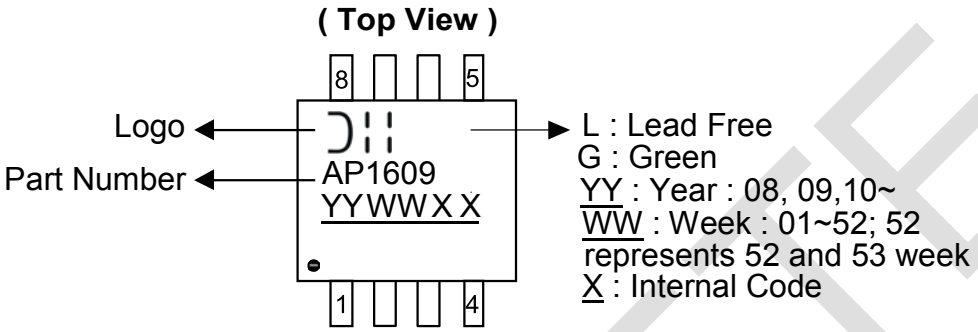






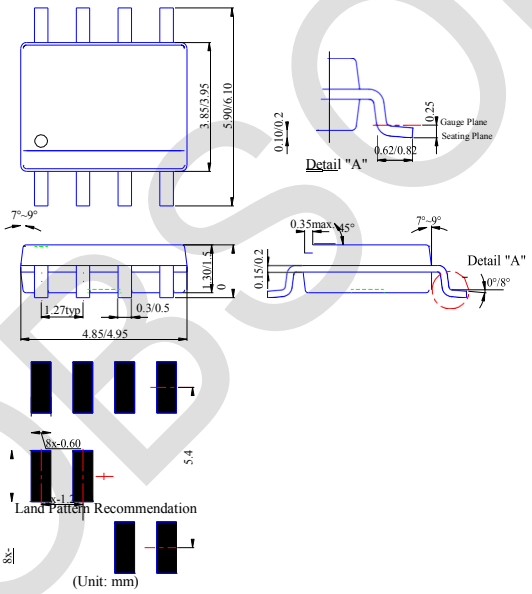
Marking Information

(1) SOP-8L



Package Information (All Dimensions in mm)

(1) Package Type: SOP-8L



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