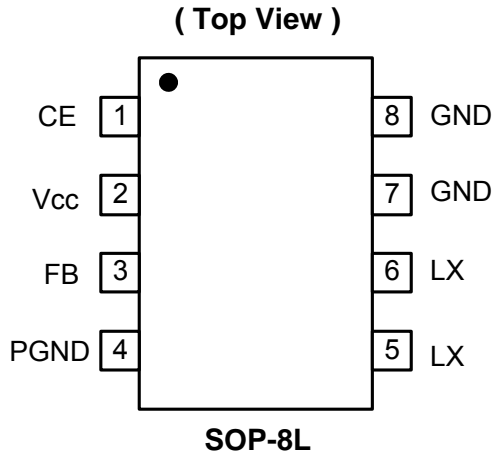




THE DATASHEET OF
AP1609SG-13



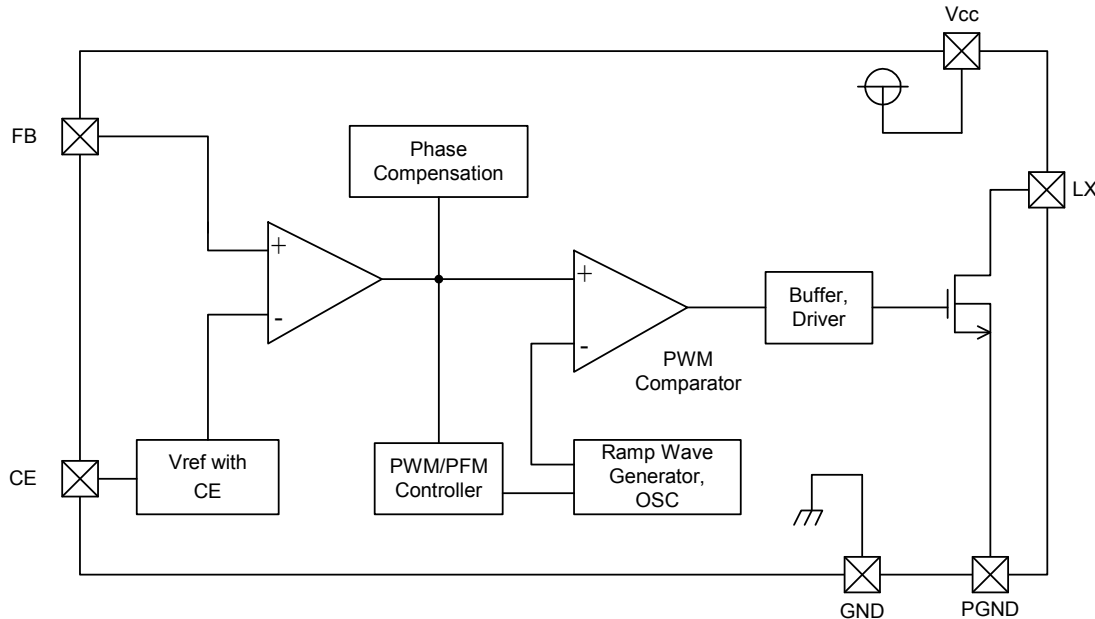
Pin Assignments



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

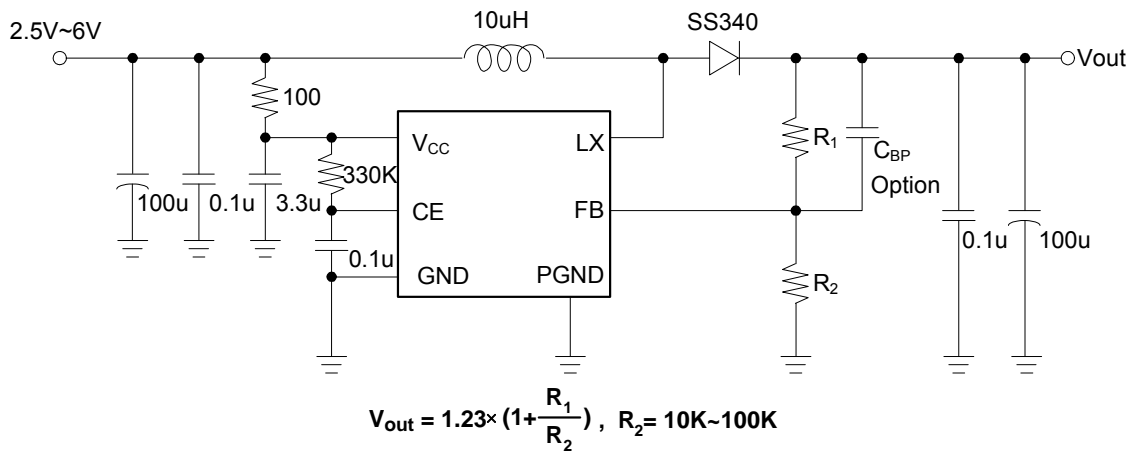
Electrical Characteristics

 AP1609 ($F_{OSC} = 300\text{kHz}$, $V_{OUT} = 5\text{V}$) $T_A = 25^\circ\text{C}$

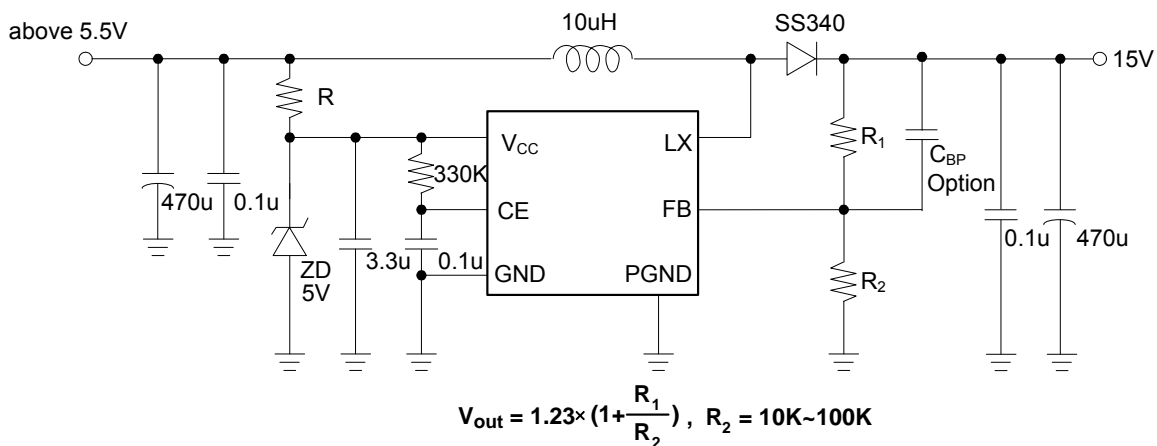
Symbol	Parameter	Conditions	Min	Typ.	Max	Units
V_{FB}	FB Voltage		1.20	1.23	1.26	V
V_{CC}	Input Voltage		2.5	-	6	V
V_{OUT}	Output Voltage		3.0	-	17	V
I_{OUT}	Maximum Switching Output Current		2.4	-	-	A
$R_{DS(ON)}$	Drain-Source On-State Resistance	$I_D = 2.4\text{A}$	-	100	-	m Ω
I_{CCQ}	Quiescent Current	No Load, FB = 2V, CE = High	-	80	130	μA
I_{SD}	Shutdown Current	No Load, CE = Low	-	1	-	μA
F_{osc}	Oscillator Frequency	Measuring of EXT Waveform, $V_{IN} = \text{Output Voltage} + 0.3\text{V}$	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, $V_{FB} = 0\text{V}$, 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

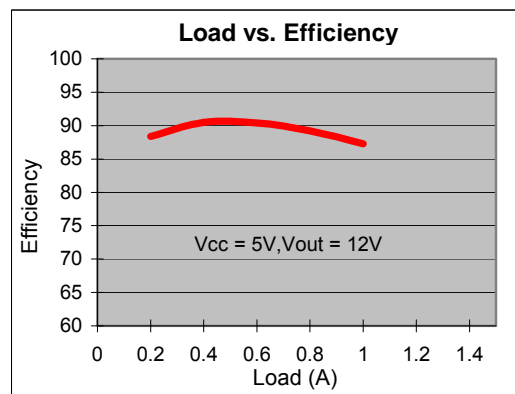
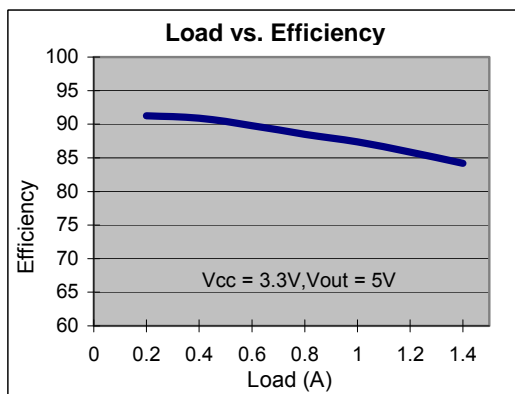
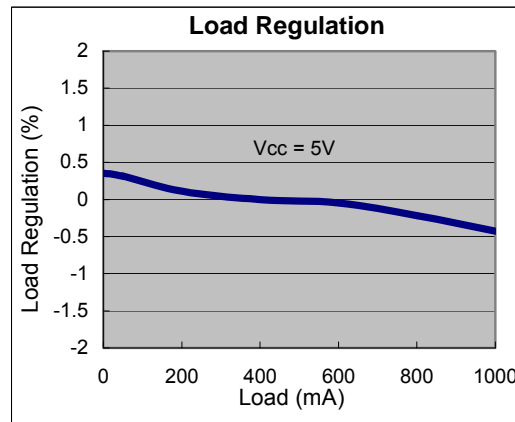
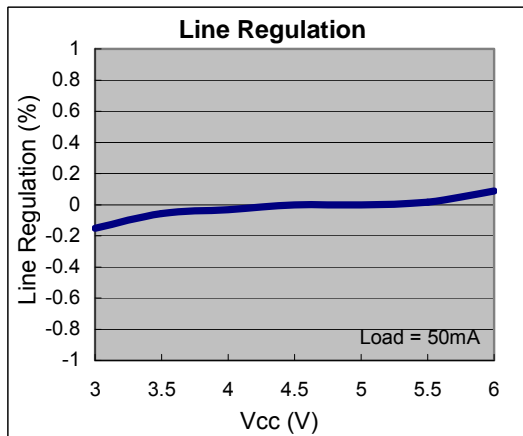
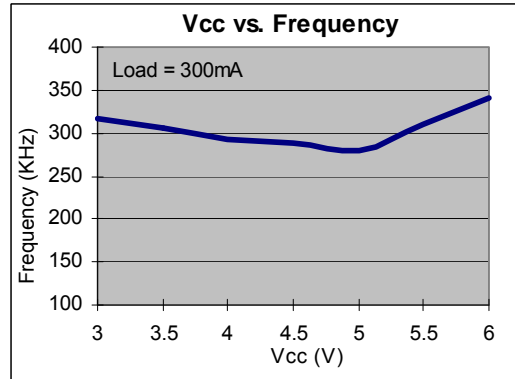
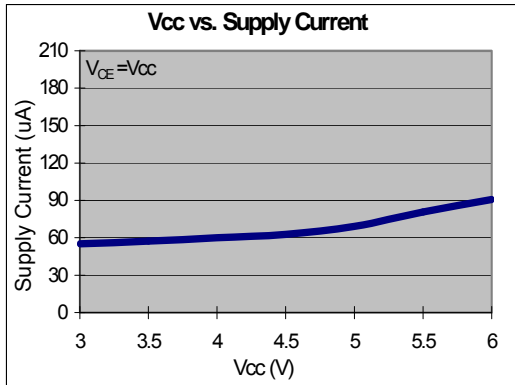
(1) Normal Circuit



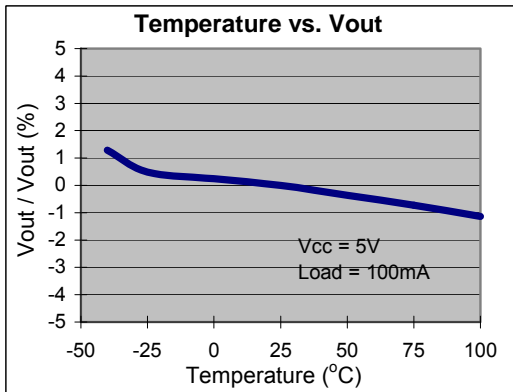
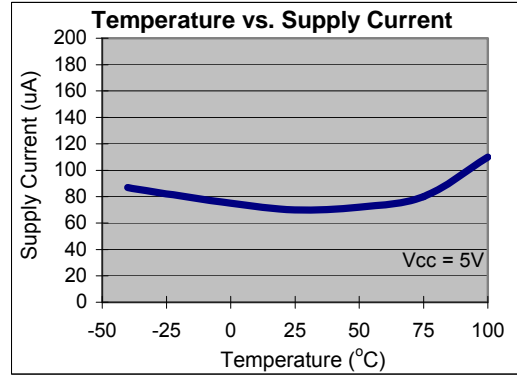
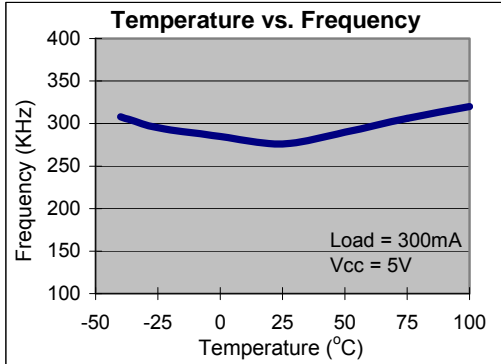
(2) HV Circuit



Typical Performance Characteristics

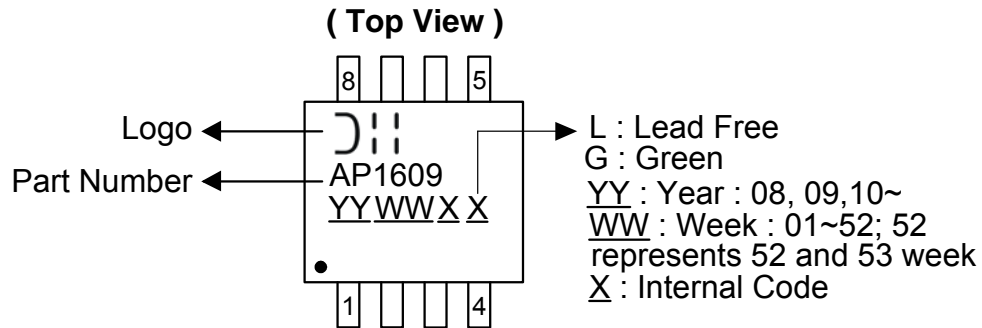


Typical Performance Characteristics (Continued)



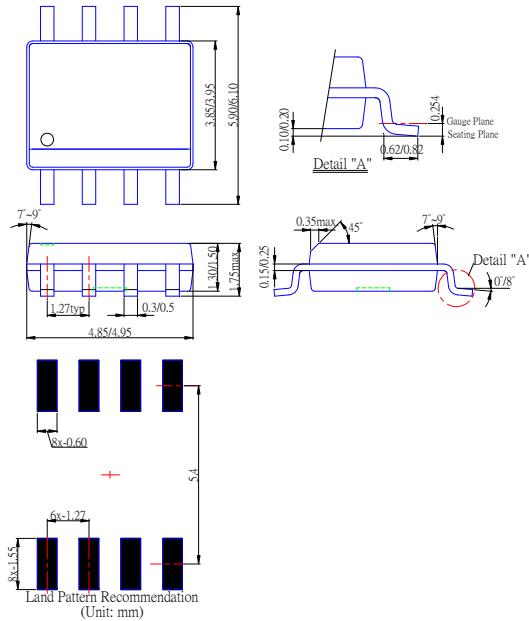
Marking Information

(1) SOP-8L



Package Information (All Dimensions in mm)

(1) Package Type: SOP-8L



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