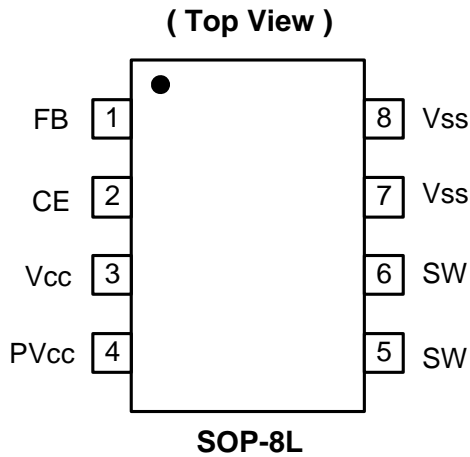


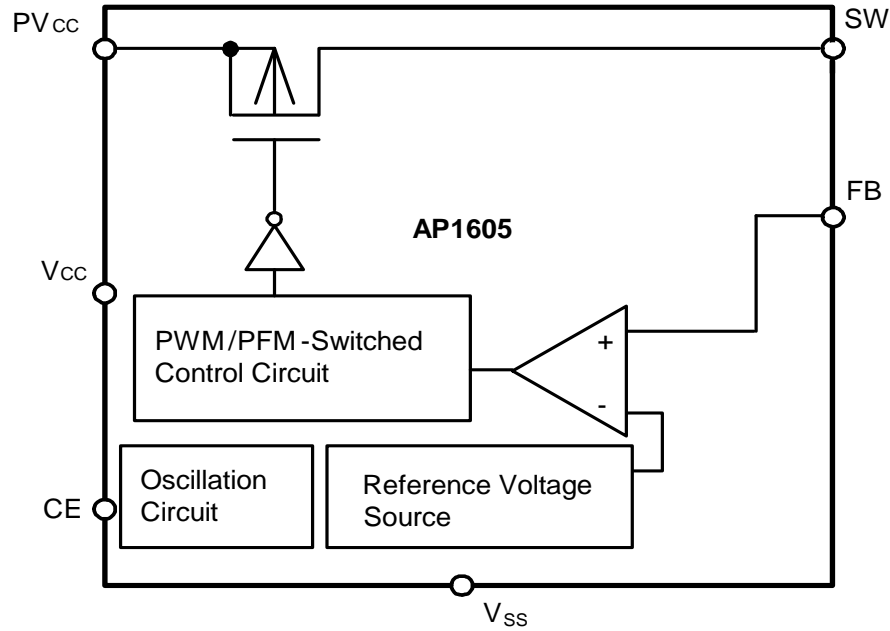
Pin Assignments



Pin Descriptions

Pin Name	Pin No.	Description
FB	1	Feedback pin
CE	2	Chip Enable: H: Enable L: Disable
Vcc	3	IC signal power supply pin, add a 10Ω resistor to PVcc and a 0.1μF capacitor to GND.
PVcc	4	IC power supply pin
SW	5, 6	Switch Pin. Connect external inductor/diode here. Minimize trace area at this pin to reduce EMI.
Vss	7, 8	GND Pin

Block Diagram



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{CC}	V_{CC} Pin Voltage	$V_{SS} - 0.3$ to $V_{SS} + 8$	V
PV_{CC}	PV_{CC} Pin Voltage	$V_{SS} - 0.3$ to $V_{SS} + 8$	V
FB	FB Pin Voltage	$V_{SS} - 0.3$ to $V_{SS} + 8$	V
V_{CE}	ON/OFF Pin Voltage	$V_{SS} - 0.3$ to $V_{SS} + 8$	V
V_{SW}	Switch Pin Voltage	$V_{SS} - 0.3$ to $V_{IN} + 0.3$	V
P_D	Power Dissipation	1200	mW
T_{OPR}	Operating Temperature Range	-20 to +85	°C
T_{STG}	Storage Temperature Range	-20 to +125	°C

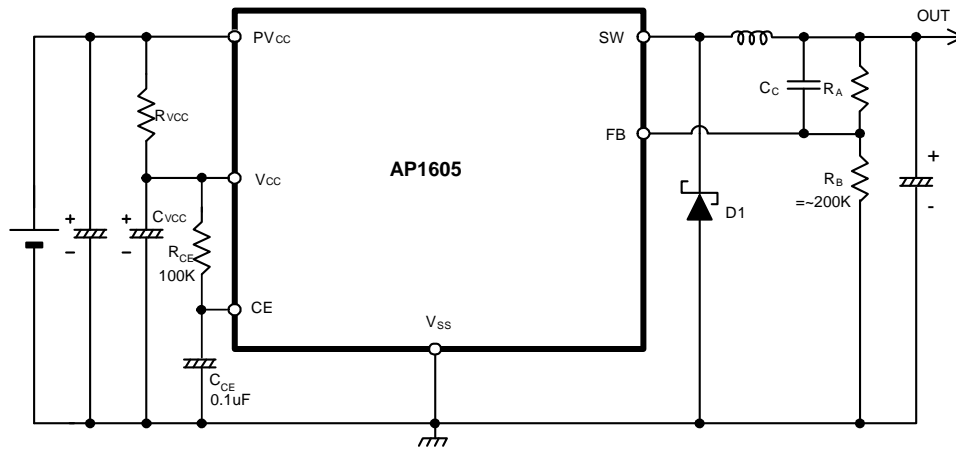
Caution: The absolute maximum ratings are rated values exceeding which the product could suffer physical damage. These values must therefore not be exceeded under any conditions.

Electrical Characteristics ($V_{IN} = 5V$, $T_A = 25^\circ C$, unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage	AP1605 Series	2.5	--	7	V
V_{REF}	Internal Reference Voltage		1.1625	1.2	1.2375	V
V_{UVLO}	UVLO Voltage	Voltage required to maintain V_{OUT}	--	--	2.2	V
MAXDTY	Maximum Duty Ratio		100	--	--	%
PFMDTY	PFM Duty Ratio		15	25	35	%
I_{SW}	Switch Current	Duty = 50%	3	--	--	A
I_{SS}	Current Consumption POWER _{ON}	$V_{OUT} = 2.5V$	--	35	100	μA
I_{SSS}	Current Consumption During Power Off	$V_{ON/OFF} = 0V$	--	--	2	μA
ΔV_{OUT1}	Line Regulation	2.5V~7V @ $I_{OUT} = 0.1A$	--	0.2	0.5	%
ΔV_{OUT2}	Load Regulation	0.1A~3A	--	1	1.5	%
F_{OSC}	Oscillation Frequency		220	300	380	KHz
V_{CEH}	CE Pin "High" Voltage	Evaluate oscillation at SW pin	0.65	--	--	*Vcc
V_{CEL}	CE Pin "Low" Voltage	Evaluate oscillation stop at SW pin	--	--	0.2	
I_{SH}	Power-Off Pin Input Leakage Current	--	-0.1	--	0.1	μA
I_{SL}		--	-0.1	--	0.1	μA
EFFI	Efficiency	$V_{IN} = 5V$, $V_{OUT} = 2.5V$ $I_{OUT} = 1A$	--	93	--	%

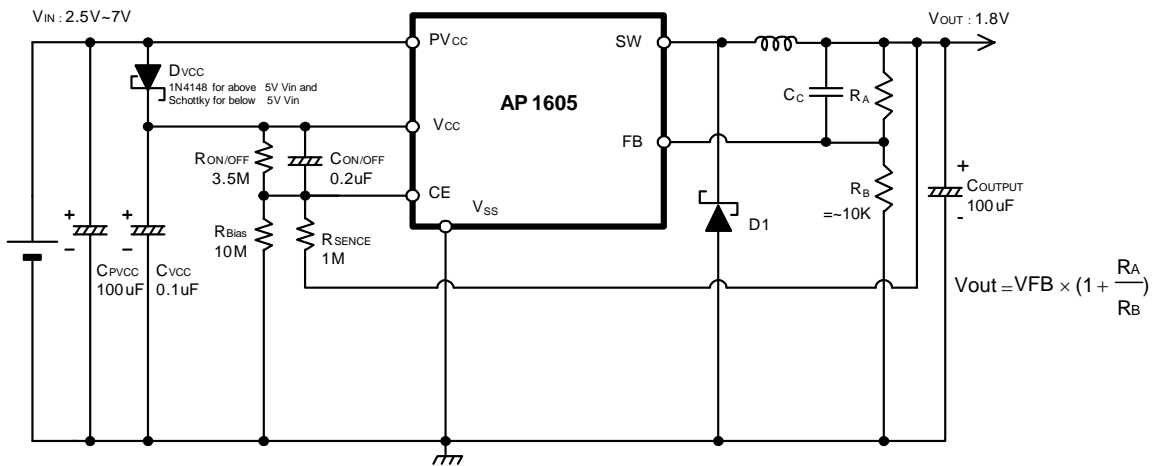
Typical Application Circuit

(1) Normal Application



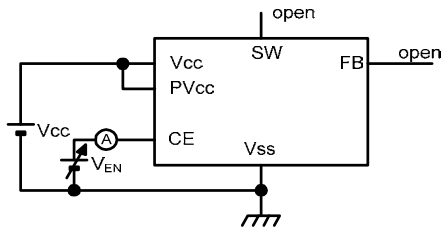
$$V_{out} = V_{FB} \times \left(1 + \frac{R_A}{R_B}\right)$$

(2) Application with Short Circuit Protection

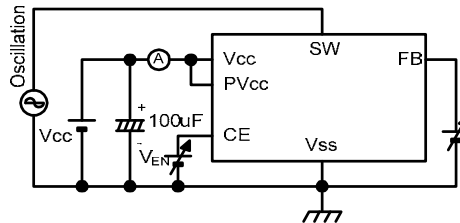


$$V_{out} = V_{FB} \times \left(1 + \frac{R_A}{R_B}\right)$$

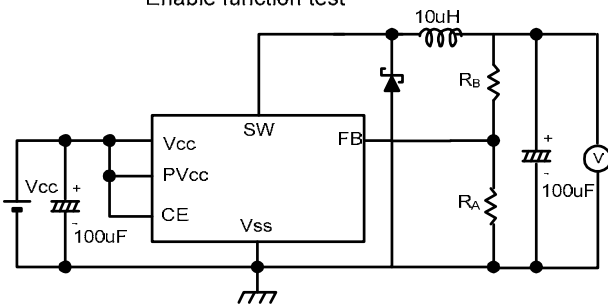
Test Circuit



Enable function test



Feedback function test



Operating function test

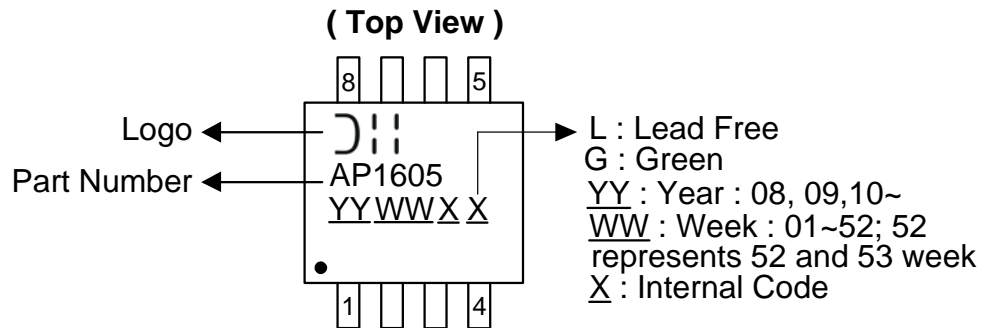
Functional Description

PWM/PFM Control (AP1605 Series)

The AP1605 consists of DC/DC converters that employ a PWM/PFM auto-switch system. In converters of the AP1605, the PFM mode varies in a range of duty cycle from 0% to 25%, and the PWM mode varies in a range of duty cycle from 25% to 100% according to the load current, and yet ripple voltage produced by the switching can easily be removed through a filter because the switching frequency remains constant. Therefore, these converters provide a low-ripple power over broad ranges of input voltage and load current.

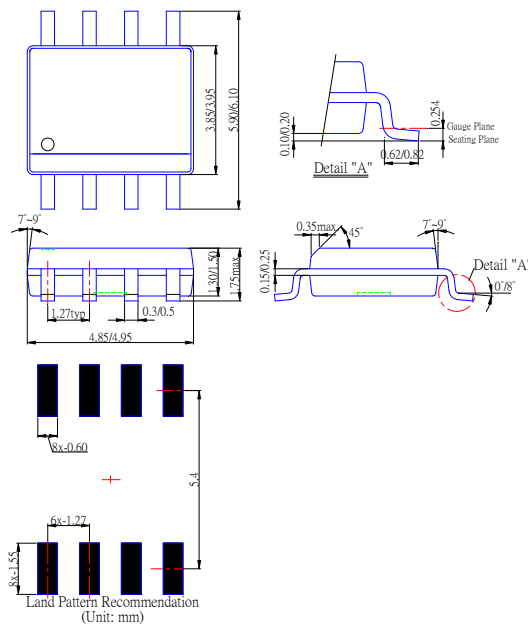
Marking Information

(1) SOP-8L



Package Information (All Dimensions in mm)

(1) Package Type: SOP-8L



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