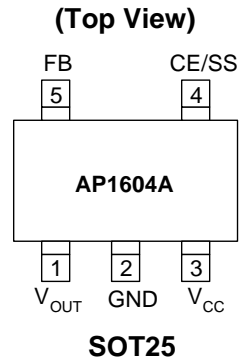




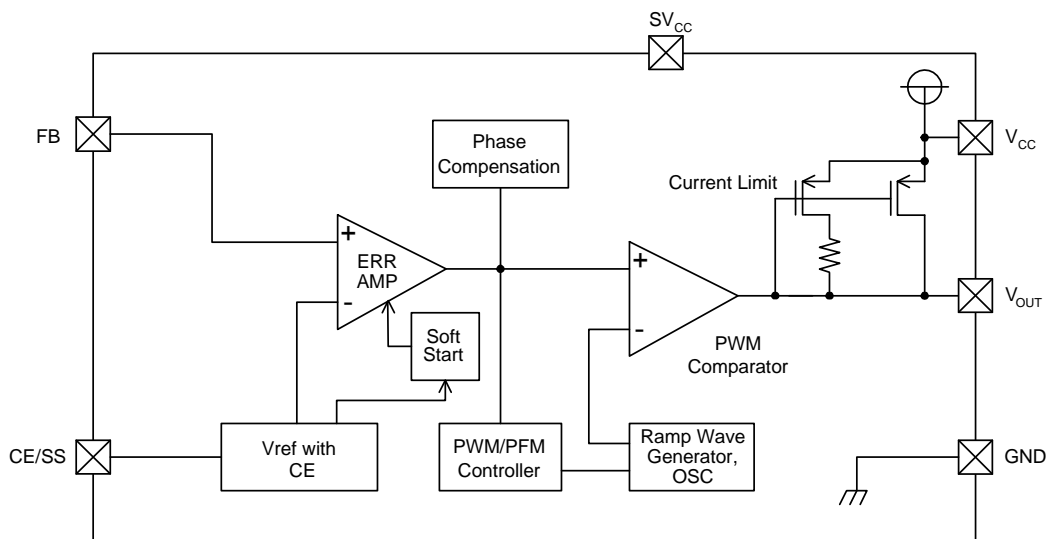
### Pin Assignment



### Pin Description

Pin Name	Description
$V_{OUT}$	Output Voltage
GND	Ground
$V_{CC}$	Input Supply
CE/SS	Chip Enable / Soft Start
FB	Feedback pin

### Block Diagram



### Absolute Maximum Ratings (T<sub>A</sub>=25°C)

Symbol	Parameter	Ratings	Units
V <sub>CC</sub> /SV <sub>CC</sub>	V <sub>IN</sub> Pin Voltage	-0.3 ~ 6.5	V
V <sub>OUT</sub>	V <sub>OUT</sub> Pin Voltage	-0.3 ~ V <sub>IN</sub> +0.3	V
V <sub>FB</sub>	FB Pin Voltage	-0.3 ~ V <sub>IN</sub> +0.3	V
V <sub>CE/SS</sub>	CE/SS Pin Voltage	-0.3 ~ V <sub>IN</sub> +0.3	V
P <sub>D</sub>	Continuous Total Power Dissipation	Internal limited	
T <sub>OP</sub>	Operating Ambient Temperature	-25 ~ +80	°C
T <sub>ST</sub>	Storage Temperature Range	-40 ~ +125	°C

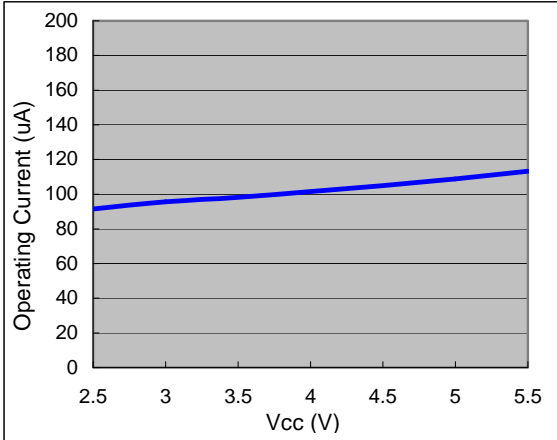
### Electrical Characteristics

V<sub>IN</sub> = 5V, V<sub>OUT</sub> = 2V, Load = 300mA, T<sub>A</sub> = 25°C

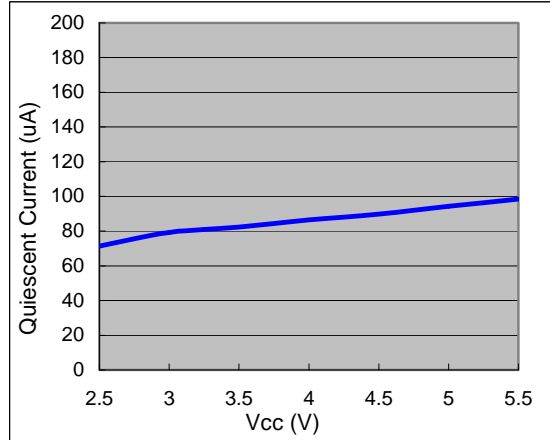
Sym.	Parameter	Conditions	Min	Typ.	Max	Units
V <sub>FB</sub>	FB		0.975	1.0	1.025	V
V <sub>IN</sub>	Input Voltage		2.2	-	5.5	V
	Line Regulation	V <sub>IN</sub> = 2.2 ~ 5.5V, Load = 10mA	-	-	0.12	%
	Load Regulation	I <sub>OUT</sub> = 10 ~ 800mA	-	-	1.2	%
V <sub>UVLO</sub>	UVLO Voltage (min. operating voltage)	V <sub>CC</sub> , voltage required to maintain H at V <sub>OUT</sub>	-	-	2	V
I <sub>CC</sub>	Operating Current	CE/SS = V <sub>IN</sub> , No Load	-	100	150	μA
I <sub>CCQ</sub>	Supply Current	No external components, CE/SS = V <sub>IN</sub> , V <sub>FB</sub> = 1.2V	-	90	120	μA
I <sub>STB</sub>	Stand-by Current	No external components, CE/SS = 0V, V <sub>FB</sub> = 0V	-	2	-	μA
I <sub>CL</sub>	Current Limit	peak current V <sub>IN</sub> = 5V, V <sub>OUT</sub> = 2V	800	1000	1200	mA
Fosc	Oscillator Frequency	Load = 300mA, V <sub>IN</sub> = 5V, V <sub>OUT</sub> = 2V	500	600	700	kHz
MAXDTY	Maximum Duty Ratio		85	90	-	%
PFMDTY	PFM Duty Ratio	No load	15	25	35	%
V <sub>CEH</sub>	CE/SS "High" Voltage	Apply 1.4V (min.) to CE/SS, determine V <sub>OUT</sub> "High"	1.4	-	-	V
V <sub>CEL</sub>	CE/SS "Low" Voltage	Same as V <sub>CEH</sub> , determine V <sub>OUT</sub> "Low"	-	-	0.6	V
EFFI	Efficiency	V <sub>CC</sub> = 5V, V <sub>OUT</sub> = 3.3V, Load = 300mA	-	93	-	%
Rdson	Rdson Condition	I <sub>OUT</sub> = 300mA, V <sub>IN</sub> = 5V, V <sub>OUT</sub> = 2V	-	350	450	mΩ

**Typical Performance Characteristics**

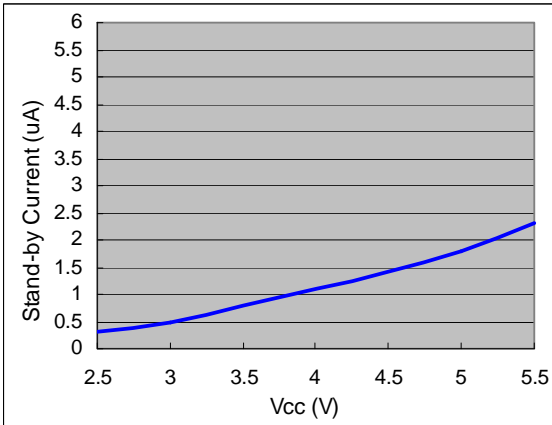
**Vcc vs. Operating Current**



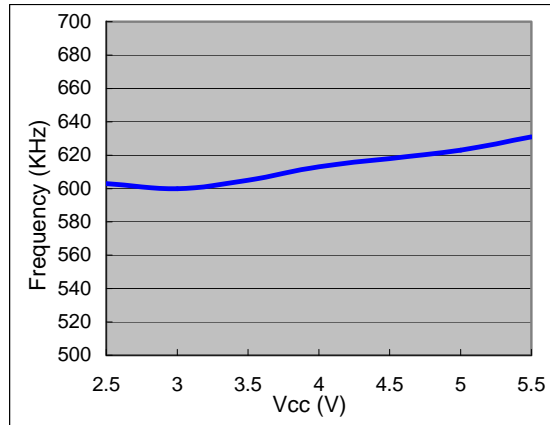
**Vcc vs. Quiescent Current**



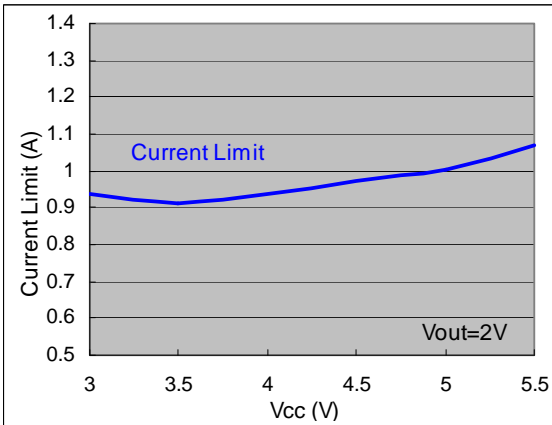
**Vcc vs. Stand-by Current**



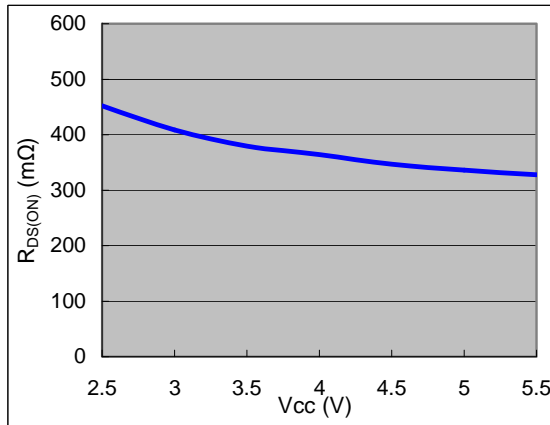
**Vcc vs. Frequency**



**Vcc vs. Current Limit**

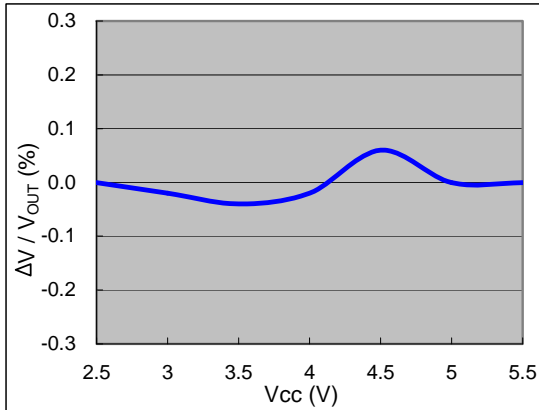


**Vcc vs. R<sub>DS(ON)</sub>**

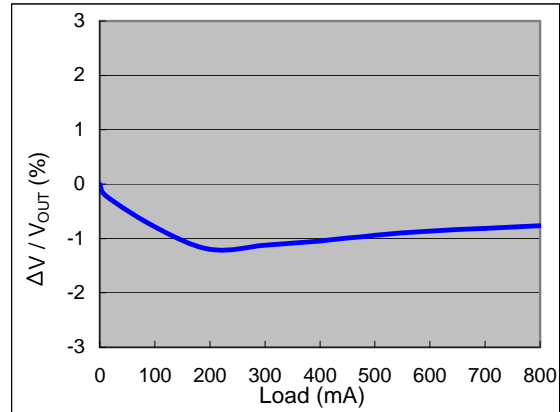


**Typical Performance Characteristics (Continued)**

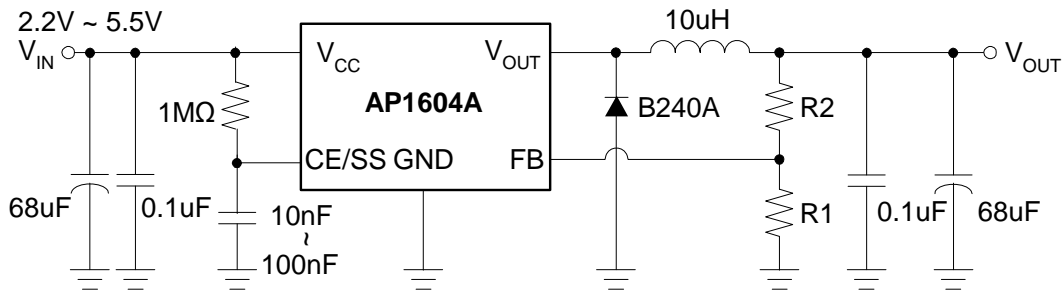
**Line Regulation**



**Load Regulation**



**Typical Application Circuit**



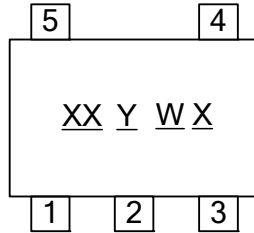
$$V_{out} = 1 \times \left(1 + \frac{R2}{R1}\right)$$

$$R1 = 100K \sim 200K$$

**Marking Information**

(1) SOT25

( Top View )

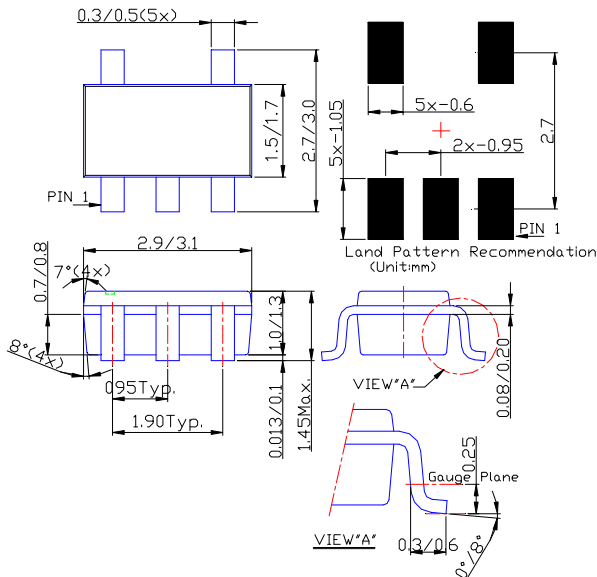


XX : Identification code  
Y : Year 0~9  
W : Week : A~Z : 1~26 week;  
 a~z : 27~52 week; z represents  
 52 and 53 week  
X : a~z : Lead Free  
 A~Z : Green

Part Number	Package	Identification Code
AP1604AW	SOT25	ER

**Package Information (All Dimensions in mm)**

(1) Package Type: SOT25



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[MCP1642B-50IMC](#)