

# AIC HV Buck Solution



Syn / Asyn	Item	Output Current	Topology	Vin	Vout	Frequency	Ron (Ohm)	Package
Syn	AIC2857	2A	PWM	4.75~23V	0.925V~12V	340KHz	N:0.13, N:0.13	SOP8 & SOP8 W/EXP
	AIC2858	3A	PWM	4.75~23V	0.925V~12V	340KHz	N:0.1, N:0.1	SOP8 W/EXP
	AIC2822	2A	PWM	4.75~23V	0.925V~12V	550KHz	N:0.14, N:0.12	SOP8 W/EXP
	AIC2823	3A	PWM	4.75~23V	0.925V~12V	550KHz	N:0.1, N:0.085	SOP8 W/EXP
Asyn	AIC2862	2A	PWM / PSM	4.75~23V	0.925V~12V	3~340KHz 5~550KHz	N:0.13, N:0.13	SOP8 W/EXP
	AIC2863	3A	PWM / PSM	4.75~23V	0.925V~12V	3~340KHz 5~550KHz	N:0.1, N:0.1	SOP8 W/EXP
	AIC2565	3A	PWM	4.75~23V	1.22V~16V	385KHz	N:0.1	SOP8 W/EXP
	AIC2566	3A	PWM	4.75~23V	0.92V~16V	385KHz	N:0.1	SOP8 W/EXP

# HV Syn Step Down Converter



Part Number	AIC2858	AIC2857	AIC2863	AIC2862
Input Voltage (V)	4.75V - 23V	4.75V - 23V	4.75V - 23V	4.75V - 23V
Output Voltage (V)	0.925V - 12V	0.925V - 12V	0.925V - 12V	0.925V - 12V
Output Current (A)	Up to 3A	Up to 2A	Up to 3A	Up to 2A
Switching Frequency (KHz)	340	340	-3: 340 -5: 550	-3: 340 -5: 550
Short Circuit Frequency (KHz)	110	110	110	110
Efficiency	12V to 5V @ 1A 92.5% 12V to 5V @ 3A 87%	12V to 5V @ 1A 92.5% 12V to 5V @ 2A 90%	12V to 3.3V @ 2A 88% 12V to 3.3V @ 0.02A 82%	12V to 3.3V @ 2A 88% 12V to 3.3V @ 0.02A 82%
Thermal Shutdown / Hysteresis	160	160	160	160
Maximum / Minimum Duty	90% / 220nS	90% / 220nS	90% / 220nS	90% / 220nS
UVLO / hysteresis (V)	4.1 / 0.21	4.1 / 0.21	4.05 / 0.21	4.05 / 0.21
Operating / Shutdown Current	1.3mA / 0.3uA	1.3mA / 0.3uA	0.7mA / 0.3uA	0.7mA / 0.3uA
Feedback Voltage (V)	0.925	0.925	0.925	0.925
Current Limit (A)	5.8A	3.4A	5.4A	3.4A
H-side Ron / L-side Ron	0.1Ω / 0.1Ω	0.13Ω / 0.13Ω	0.1Ω / 0.1Ω	0.14Ω / 0.12Ω
Structure	Synchronous current-mode bootstrap PWM step down converter	Synchronous current-mode bootstrap PWM step down converter	Synchronous high light load efficiency current-mode bootstrap step down converter	Synchronous high light load efficiency current-mode bootstrap step down converter
Package	SOP-8 with exposed pad	SOP-8 with exposed pad	SOP-8 with exposed pad	SOP-8 with exposed pad
External Components	2*Cin (10uF)	1*Cin (10uF)	1*Cin (10uF)	1*Cin (10uF)
	2* Cout (22uF)	2* Cout (22uF)	2* Cout (10uF)	2* Cout (22uF)
	1* L (10uH)	1* L (10uH)	1* L (10uH)	1* L (15uH)
	2* Rfb	2* Rfb	2* Rfb	2* Rfb
	1* Cbst	1* Cbst	1* Cbst	1* Cbst
	1*Rcomp, 1*Ccomp 1*C <sub>ss</sub>	1*Rcomp, 1*Ccomp 1*C <sub>ss</sub>	1*Rcomp, 1*Ccomp 1*C <sub>ss</sub>	1*Rcomp, 1*Ccomp 1*C <sub>ss</sub>
	Total:11	Total:10	Total:10	Total:10

# AIC2862

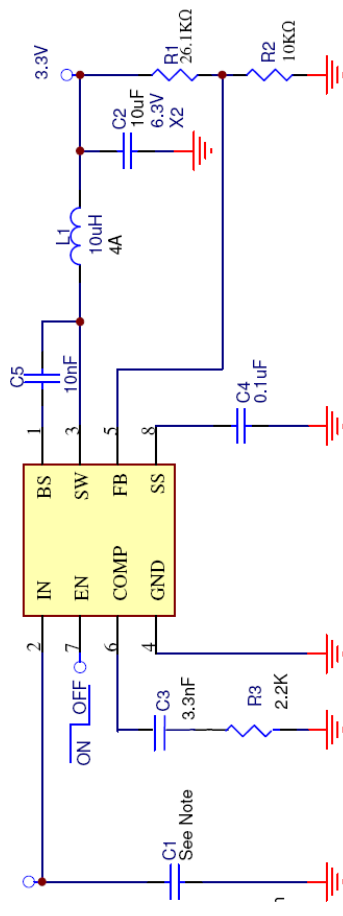


## 2A/23V 340/550KHz Synchronous Step Down Converter

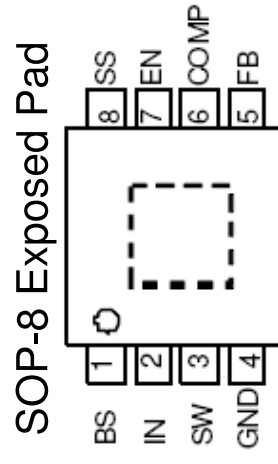
### Feature

- 2A Continuous Output Current
- Wide 4.75 to 23V Operating Input Range
- Output Adjustable from 0.925V to 12V
- Up to **88%** Efficiency for Heavy Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=2.0A$ )
- Up to **85%** Efficiency for Moderate Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=200mA$ )
- Up to **82%** Efficiency for Light Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=20mA$ )
- Low Rds(on) Internal Switches:  $150m\Omega$  and  $120m\Omega$
- **<3 $\mu$ A** Supply Current in Shutdown Mode
- Fixed **340K/550KHz** Frequency
- **Programmable Soft Start**
- Thermal Shutdown
- Cycle by Cycle Over Current Protection
- Under Voltage Lockout
- Short Circuit Protection
- Over Voltage Protection

### Application Circuit



### Package Type



# AIC2863

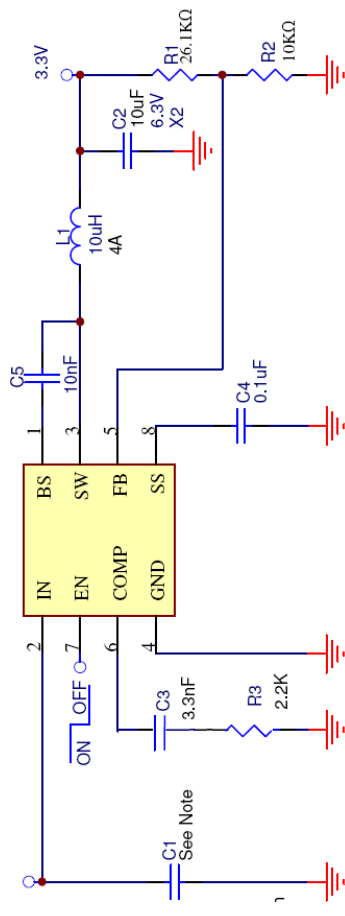


## 3A/23V 340/550KHz Synchronous Step Down Converter

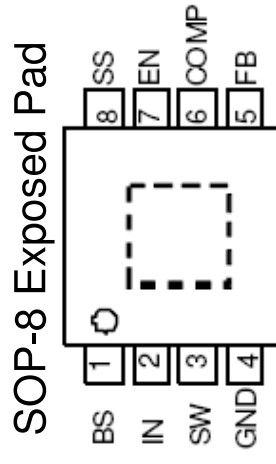
### Feature

- 3A Continuous Output Current
- Wide 4.75 to 23V Operating Input Range
- Output Adjustable from 0.925V to 12V
- Up to **88%** Efficiency for Heavy Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=2.0A$ )
- Up to **85%** Efficiency for Moderate Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=200mA$ )
- Up to **82%** Efficiency for Light Load  
( $V_{in}=12V$ ,  $V_{out}=3.3V$ ,  $I_{out}=20mA$ )
- Low  $R_{ds(on)}$  Internal Switches:  $110m\Omega$  and  $80m\Omega$
- **<3 $\mu A$**  Supply Current in Shutdown Mode
- Fixed **340K/550KHz** Frequency
- **Programmable Soft Start**
- Thermal Shutdown
- Cycle by Cycle Over Current Protection
- Under Voltage Lockout
- Short Circuit Protection
- Over Voltage Protection

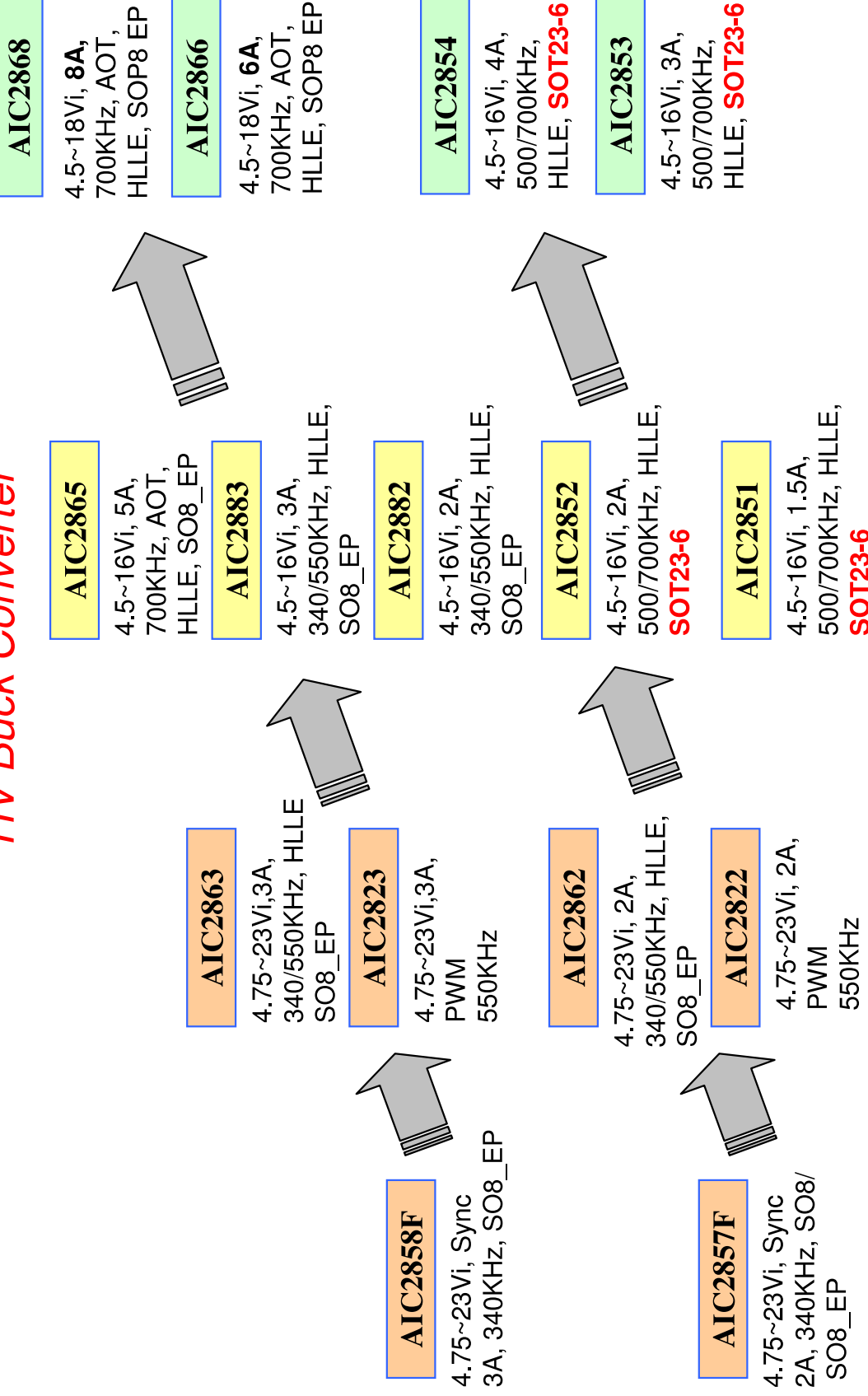
### Application Circuit



### Package Type



# Product Roadmap HV Buck Converter



Available Parts      2013 Q4      2014

Available    Under Developing    New Idea