



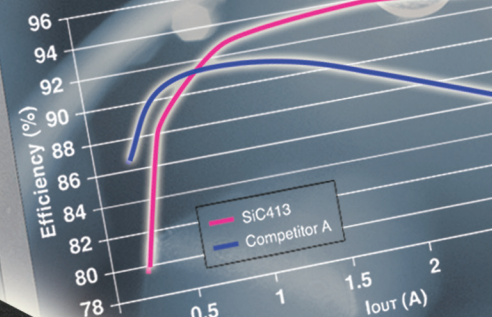
VISHAY INTERTECHNOLOGY, INC.

POWER ICs

## microBUCK™ PRODUCT FAMILY

Highly Integrated Synchronous Buck Regulators

PRODUCT OVERVIEW





# microBUCK™ PRODUCT FAMILY

## High Integrated Synchronous Buck Regulators

### SiC413, SiC414, and SiC417 microBUCK™ Product Family

Product Summary Table			
	SiC413	SiC414	SiC417
Package	SO-8	MLPQ44-28	MLPQ55-32
Package size	6.2 mm x 5mm x 1.75 mm	4 mm x 4 mm x 0.9 mm	5 mm x 5 mm x 0.9 mm
V <sub>IN</sub>	4.75 V to 26 V	3 V to 28 V	3 V to 28 V
V <sub>OUT</sub>	0.6 V to 13.2 V	0.75 V to 5.25 V	0.5 V to 5.5 V
Operating frequency	500 kHz	200 kHz to 1 MHz	200 kHz to 1 MHz
I <sub>OUT</sub>	4 A	6 A	10 A
Efficiency	93 % at 300 kHz	95 % at 300 kHz	95 % at 300 kHz
Integrated bootstrap diode	•	•	•
Under voltage lockout	•	•	•
Power good output		•	•
Output over-voltage protection	•	•	•
Output over-current protection	•	•	•
Selectable power save mode		•	•
Internal soft-start and soft-shutdown	•	•	•
Integrated configurable LDO with bypass logic		•	•
All ceramic solution enabled	•	•	•
Pseudo-fixed frequency adaptive on-time control		•	•
1% internal reference voltage		•	•
Internal power MOSFETs	•	•	•
Thermal shutdown	•		

Applications			
Desktop and server computers	•	•	•
Notebook		•	•
Networking and telecommunication equipment	•	•	•
LCD TV, STB, and other consumer applications	•	•	

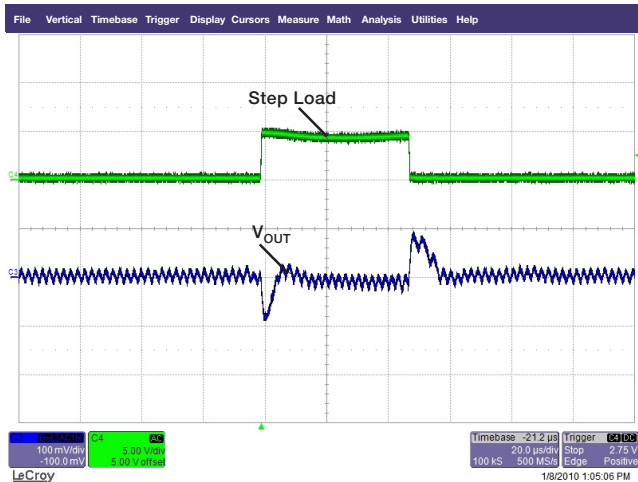
Datasheets are available on our web site at [www.vishay.com](http://www.vishay.com)

for SiC413 - <http://www.vishay.com/doc?69057>

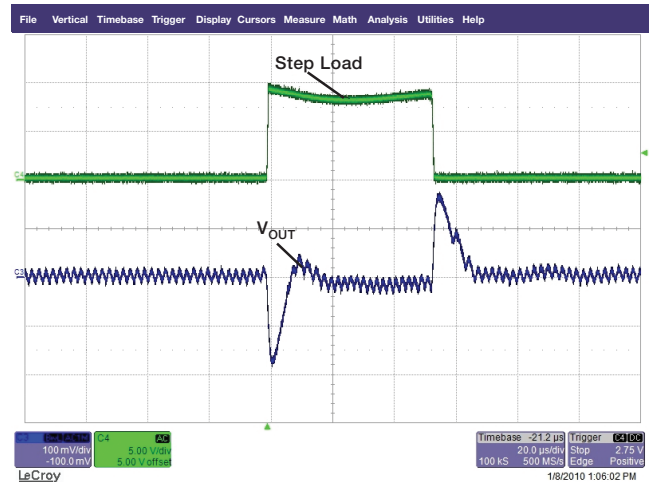
for SiC414 - <http://www.vishay.com/doc?65726>

for SiC417 - <http://www.vishay.com/doc?69062>

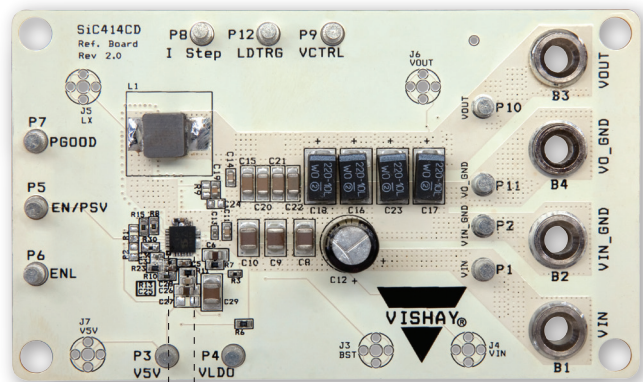
## SiC413, SiC414, and SiC417 microBUCK™ Product Family



Transient response I<sub>OUT</sub> 5 A



Transient response I<sub>OUT</sub> 10 A



4 mm Actual package size  
 4 mm

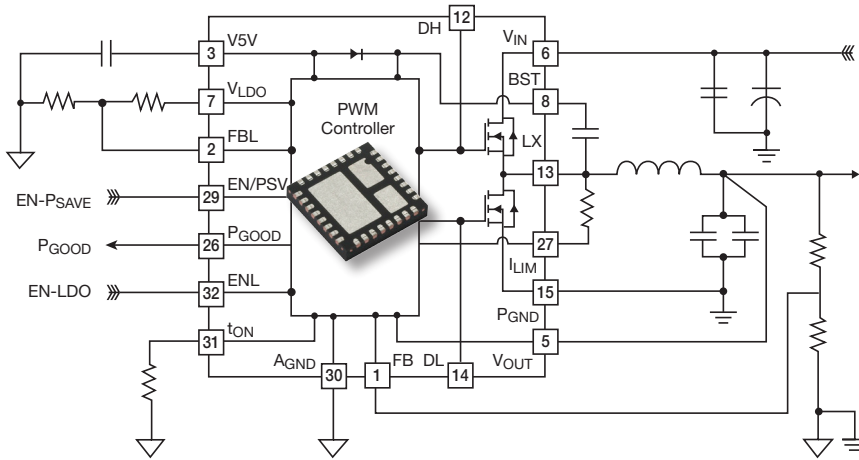
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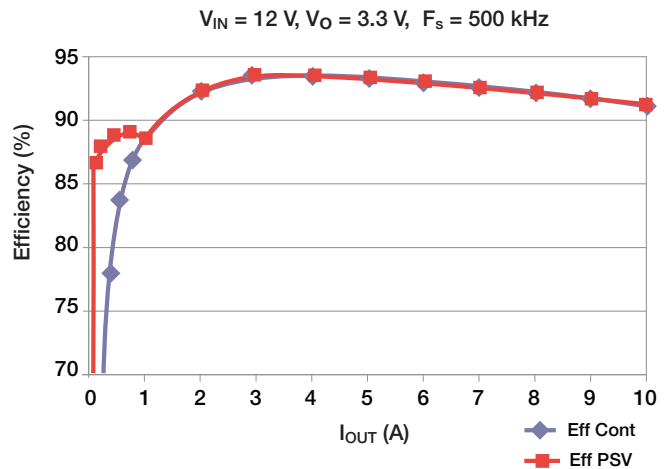
# microBUCK™ PRODUCT FAMILY

High Integrated Synchronous Buck Regulators

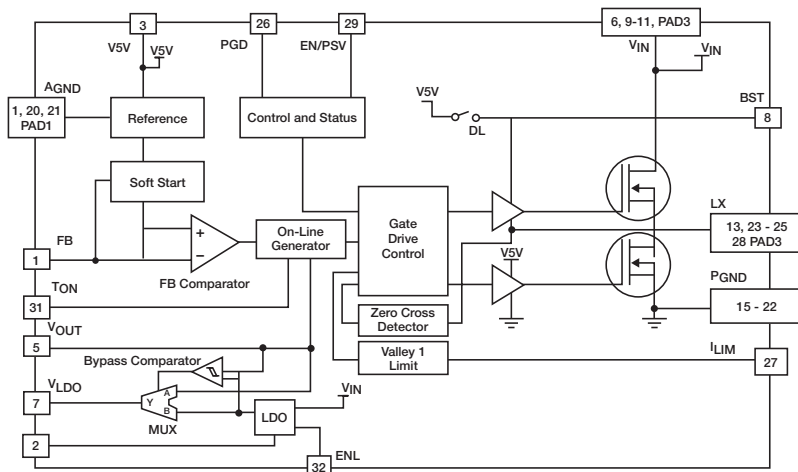
## SiC417 10-A Buck Regulator with Over 92 % Efficiency in MLPQ55-32



SiC417CD typical application circuit

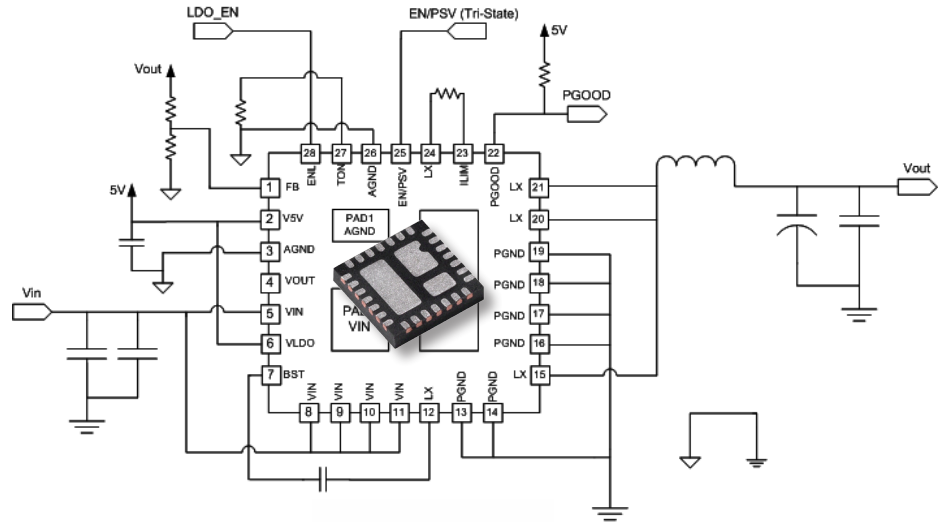


SiC417CD efficiency curve

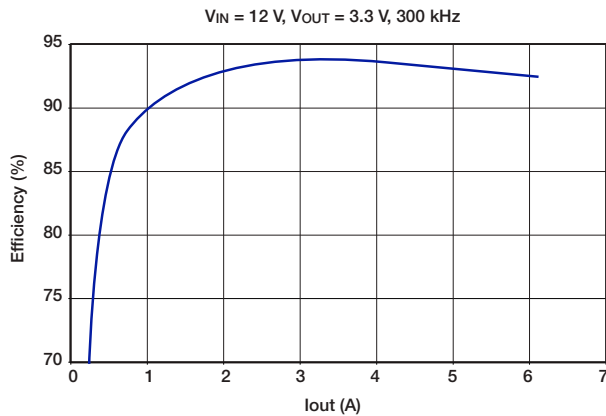


SiC417CD block diagram

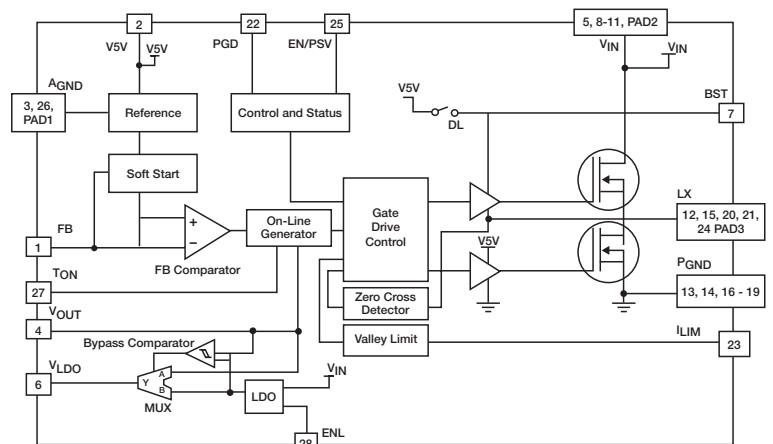
## SiC414 6-A, 28-V Buck Regulator with 5-V LDO in MLPQ44-28



SiC414CD typical application circuit



SiC414CD efficiency curve



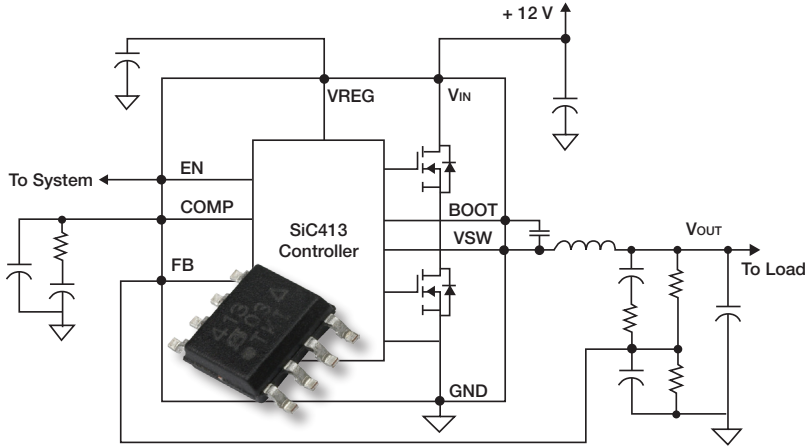
SiC414CD block diagram



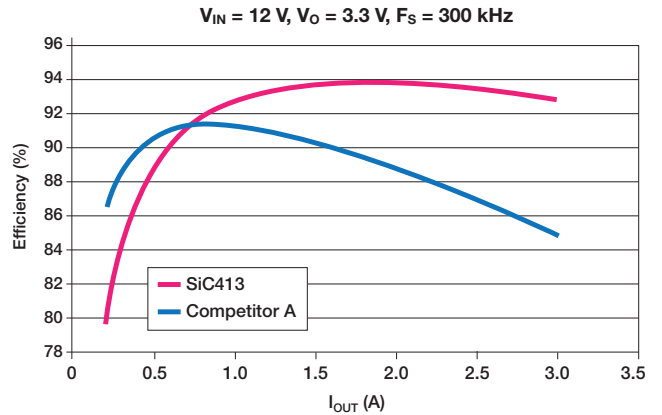
# microBUCK™ PRODUCT FAMILY

## High Integrated Synchronous Buck Regulators

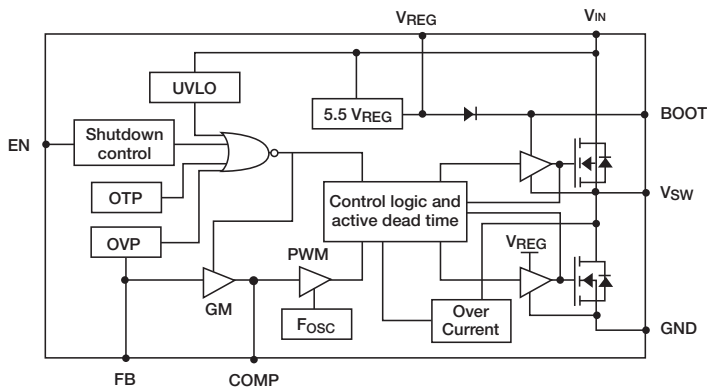
### SiC413 4-A, 26-V Buck Regulator with 93 % Efficiency in SO-8



SiC413CB typical application circuit



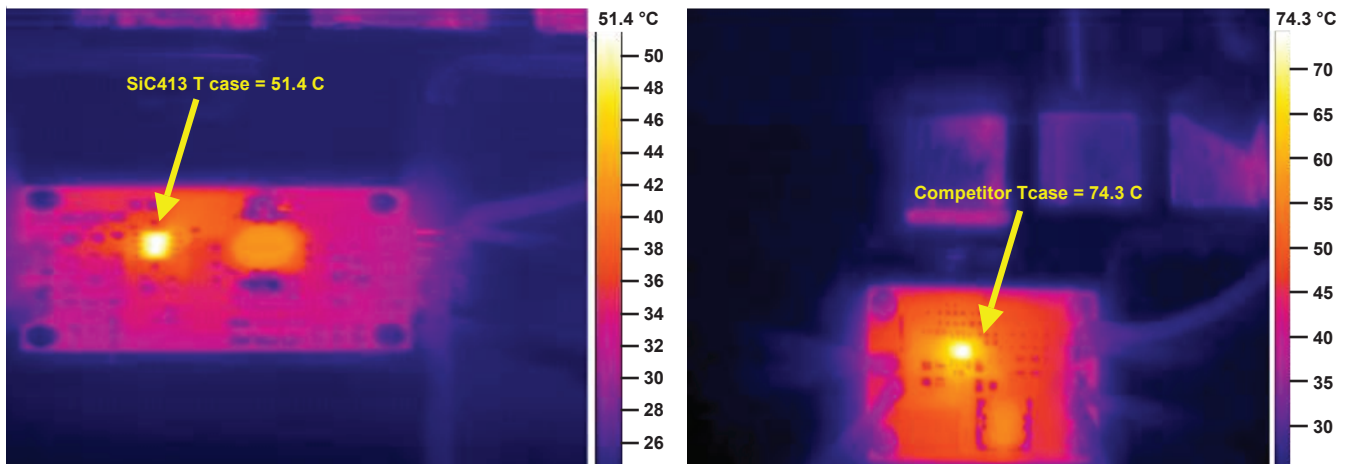
SiC413CB versus competitor efficiency



SiC413CB block diagram

## SiC413 4-A, 26-V Buck Regulator with 93 % Efficiency in SO-8 (continued)

SiC413CB Versus Competitor Thermals	
SiC413 is 23.2 °C cooler	
V <sub>IN</sub>	12 V
V <sub>OUT</sub>	3.3 V
I <sub>OUT</sub>	3.0 A
SiC413 efficiency	93 %
Competitor's efficiency	85 %



SiC413CB versus competitor thermals

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