

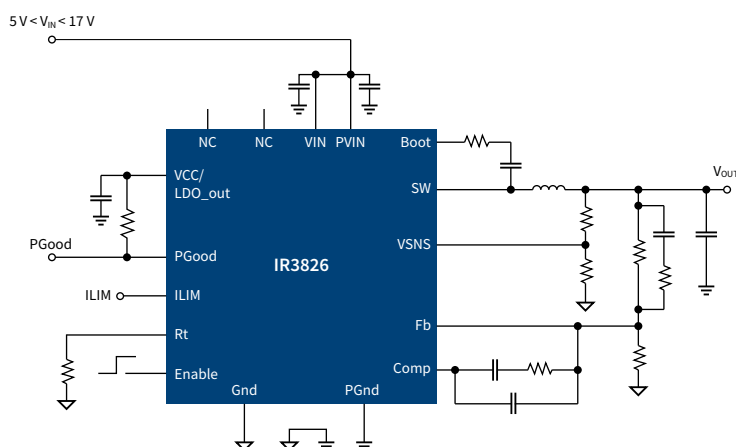


## Product brief

# OptiMOS™ IPOL voltage regulators

IR3826M (23 A), IR3826AM (16 A)

The IR3826M is a fully integrated and highly efficient DC-DC regulator that can operate from 12 V and provide up to 23 A continuous current in a small 5 x 6 mm footprint for high-density applications. Two different current ratings, 23 A (IR3826M) and 16 A (IR3826AM), are offered in the same footprint for easy scalability. Parts are pin compatible to previous generation Infineon offering to allow risk-free efficiency upgrade of systems with minimum design effort. The devices are also RoH2 fully compliant without exemption to accommodate future regulations. FETs upgrade enables a relevant efficiency improvement compared to previous offering in the same footprint (greater than 2 percent peak efficiency and than 6 percent for efficiency at 20 A) making this the ideal solution to reduce power losses and to solve heat challenge in thermally constrained applications, such as 3.3 V and 5 V main supply voltages or telecom applications requiring high ambient temperature (85°C) support without or with minimum airflow. Proven state-of-the-art voltage mode PWM Gen3 engine allows constant frequency operation that is generally preferred to reduce noise and interference in multi rail telecom or high end netcom applications, such as base stations. They also feature all protection and functions required for enterprise: pre-bias startup, thermal shutdown, thermally compensated over current protection, enable pin and power good output.



### Key features

- > 16 A and 23 A in PQFN 5 x 6 mm
- > Pin compatible with previous Gen3 Infineon offering
- > OptiMOS™ 5 for enhanced efficiency reduces power losses and enables 1 MHz operations for density
- > State-of-the-art voltage mode Gen3 PWM engine
- > Wide input voltage range of 5-17 V, down to 1 V with 5 V ext. bias
- > Precise output voltage (0.6% accurate 0.6 V reference voltage)

### Key benefits

- > High switching frequency (up to 1.5 MHz) for small PCB size and less caps
- > Benchmark efficiency

### Key applications

- > High density and high efficiency POL voltage regulators from 5-17 V input to 0.6-5 V output with load current from 10-23 A
- > Telecom application like base station that favor fixed frequency operation to reduce noise

Part name	Package	Input voltage	Output current	Moisture sensitivity level	OPN
IR3826M	PQFN 5 x 6	1 – 17 V	23 A	2	IR3826MTRPBF
IR3826AM	PQFN 5 x 6	1 – 17 V	16 A	2	IR3826AMTRPBF

[www.infineon.com/analog-ipol](http://www.infineon.com/analog-ipol)

[www.infineon.com/ir3826m](http://www.infineon.com/ir3826m)

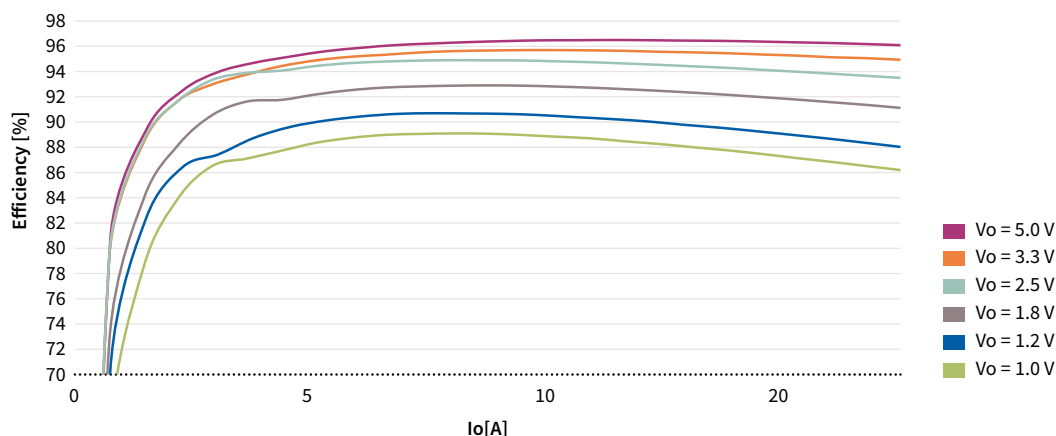
[www.infineon.com/ir3826am](http://www.infineon.com/ir3826am)



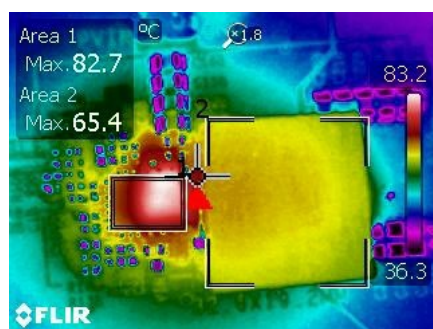
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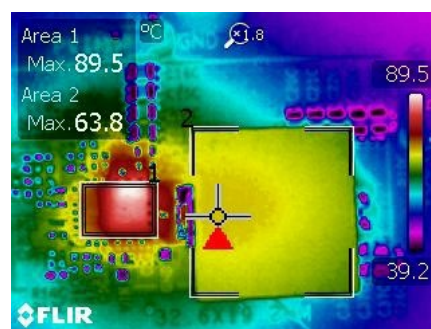
IR3826  $PV_{in} = V_{in} = 12\text{ V}$ ,  $f_{sw} = 600\text{ kHz}$  natural convection,  $T_a = 25^\circ\text{C}$



Thermal image  $PV_{in} = 12\text{ V}$ , natural convection, room temperature



$V_{out} = 3.3\text{ V}$   
 $I_{out} = 23\text{ A}$   
IC temp =  $83^\circ\text{C}$



$V_{out} = 5\text{ V}$   
 $I_{out} = 23\text{ A}$   
IC temp =  $89^\circ\text{C}$

## Evaluation boards

OPN	Description	Features
EVAL_3826-23A	Evaluation board for IR3826M	12 V input, 1.2 V output, $f_{sw} = 600\text{ kHz}$ , current = 0-23 A
EVAL_3826A	Evaluation board for IR3826AM	12 V input, 1.2 V output, $f_{sw} = 1\text{ MHz}$ , current = 0-16 A



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