



Generation III XS™ DrMOS Portfolio

Fairchild Solution Delivers the Highest Efficiency in the Industry

The new DrMOS delivers 3% more efficiency than the Generation II DrMOS. And, because it's designed for high switching frequency, engineers can reduce the output capacitors and the size of inductor to minimize the PCB space, lower the BOM cost and increase the power density. Additionally, Generation III is compatible to any analog and digital PWM controller in the industry.

Features

- 100% compliant to Intel® DrMOS v4.0 specifications
- Supports 5 V and 3.3 V Tri-state PWM input
- 150°C thermal warning protection feature
- Saving more than 50% PCB space compare to discrete solutions
- PQFN 6 mm x 6 mm multi-chip packaging reduces V_{CC} -to-GND and V_{IN} -to-GND loop inductance
- Implemented 30 K shunt resistor between gate-source, prevents $C \times dv/dt$ turn-on of the MOSFET during V_{IN} charging
- PowerTrench® with Shielded Gate Technology reduces power losses and eliminates the need for a snubber circuit

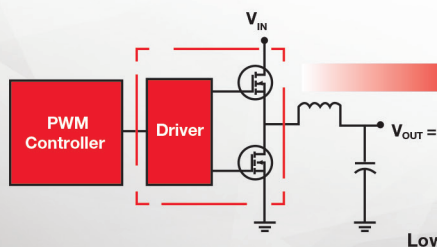
Key Advantages

- 93% at peak and 91% at 30A, 500 KHz
Freq. 12 V_{IN} , 1 V_{OUT}
- 90% at peak and 88% at 30A, 1 MHz
Freq. 12 V_{IN} , 1 V_{OUT}
- High current handling: 60A at 100°C T_J
- Capable of operating up to 1.5 MHz switching frequency
- Helps designers to remove the heat sink

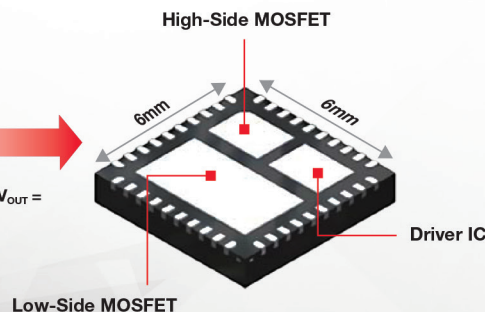
Applications

- High current DC-DC synchronous Buck converters
- High performance servers and workstations
- Telecom and networking DC-DC modules
- High-end notebook PC and game consoles

DC-DC Buck Converter



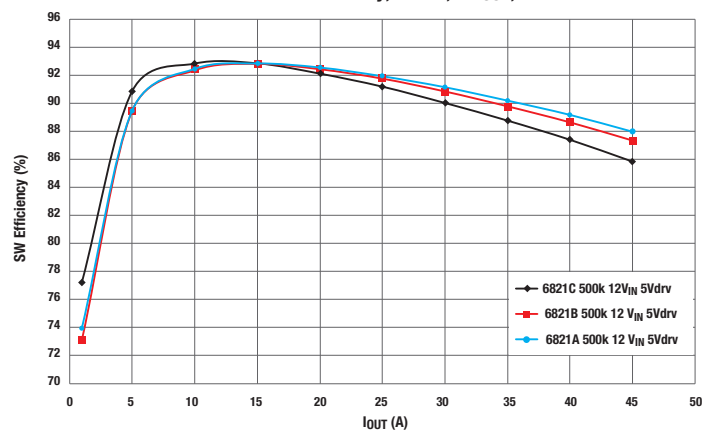
Extra Small High-Performance DrMOS Package



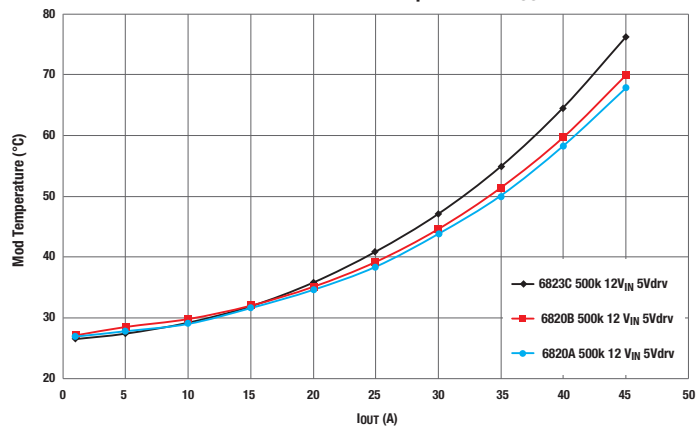
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Part Number	I _{OUT} (A)	PWM Input	Thermal Protection	SMOD or ZCD	V _{IN} Range (V)	Efficiency at 30 A, 12 V _{IN} , 1 V _{OUT} , 500 KHz
FDMF6820/21A	60	3.3V Tri-state	Warning	SMOD	3 to 15	91.1%
FDMF6820/21B	55	3.3V Tri-state	Warning	SMOD	3 to 15	90.8%
FDMF6820/21/40C	50	3.3V Tri-state	Warning	SMOD	3 to 15	90%
FDMF6823/24A	60	5V Tri-state	Warning	SMOD	3 to 15	91.1%
FDMF6823/24B	55	5V Tri-state	Warning	SMOD	3 to 15	90.8%
FDMF6823/24C	50	5V Tri-state	Warning	SMOD	3 to 15	90%
FDMF6833C	50	5V Tri-state	Warning	SMOD	3 to 24	89.3%
FDMF6708N	45	5V Tri-state	Warning	ZCD	3 to 24	87.6%
FDMF3030	50	5V Tri-state	Warning	ZCD	3 to 24	88.7%

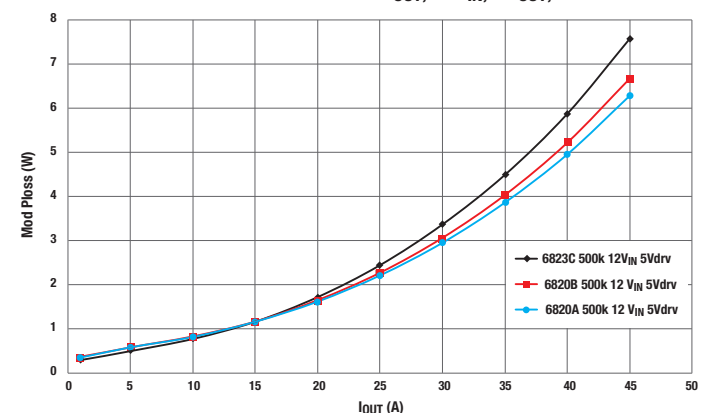
Module Efficiency, 12 V_{IN}, 1 V_{OUT}, 500 KHz



Module Maximum Temperature vs I_{OUT}



Module Power Loss vs I_{OUT}, 12 V_{IN}, 1 V_{OUT}, 500 KHz



For more information on the complete DrMOS portfolio, please visit fairchildsemi.com/drmos

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