

## Dual N-Channel Enhancement Mode MOSFET

### General Description

The CMSC8447B is designed to provide a high efficiency synchronous buck power stage with optimal layout and board space utilization. This device is well suited for use in compact DC/DC converter applications.

### Features

- 40V, 22A, RDS(ON) = 19mΩ @ VGS = 10V
- Low Gate Charge
- High Current Capability
- RoHS Compliant

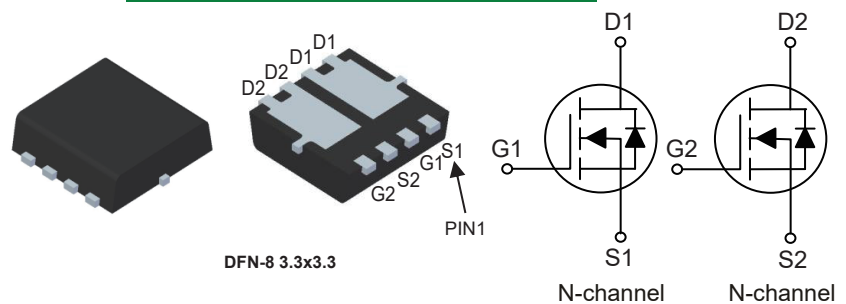
### Product Summary

BVDSS	RDS(ON)	ID
40V	19mΩ	22A

### Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

### DFN-8 3.3x3.3\_Dual Pin Configuration



Type	Package	Marking
CMSC8447B	DFN-8 3.3*3.3	CMSC8447B

### Maximum Ratings and Thermal Characteristics (T<sub>A</sub> = 25 °C unless otherwise noted)

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	40	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub> @T <sub>C</sub> =25 °C	Continuous Drain Current	22	A
I <sub>D</sub> @T <sub>C</sub> =100 °C		18	A
I <sub>DM</sub>	Pulsed Drain Current	88	A
P <sub>D</sub> @T <sub>C</sub> =25 °C	Total Power Dissipation	35	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-ambient(Steady-State)	---	50	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction -Case(Steady-State)	---	3.5	°C/W

**Electrical Characteristics (T<sub>J</sub>=25 °C unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250μA	40	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V , I <sub>D</sub> =8A	---	---	19	mΩ
		V <sub>GS</sub> =4.5V , I <sub>D</sub> =5A	---	---	23	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	1	---	3	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =40V , V <sub>GS</sub> =0V	---	---	1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =5V , I <sub>D</sub> =8A	---	15	---	S
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V , V <sub>GS</sub> =10V , I <sub>D</sub> =10A	---	14	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	4	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	3	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =15V , V <sub>GS</sub> =10V , I <sub>D</sub> =10A R <sub>GEN</sub> =6.8Ω	---	7	---	ns
T <sub>r</sub>	Rise Time		---	13	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	19	---	
T <sub>f</sub>	Fall Time		---	8	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V , V <sub>GS</sub> =0V , f=1MHz	---	1200	---	pF
C <sub>oss</sub>	Output Capacitance		---	75	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	45	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	---	---	22	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =10A	---	---	1.2	V

Notes:

This product has been designed and qualified for the consumer market.  
 Cmos assumes no liability for customers' product design or applications.  
 Cmos reserves the right to improve product design ,functions and reliability without notice.