

General Description

The CMSA8447A uses advanced trench technology to provide excellent RDS (ON), This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- RDS(ON)<14mΩ @ VGS=10V
- 100% avalanche tested
- Small Footprint (5x6mm) for Compact Design
- RoHS Compliant

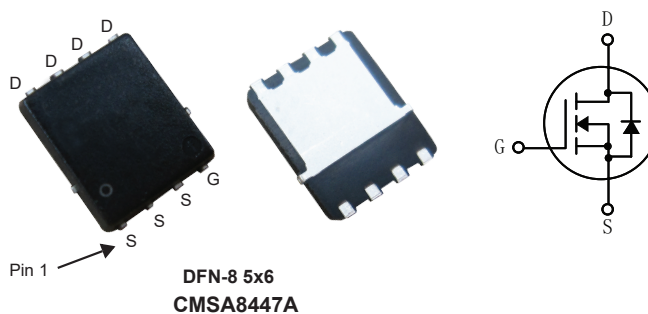
Product Summary

BVDSS	RDSON	ID
40V	14mΩ	36A

Applications

- DC-DC Converter
- Motor Drive
- Powertrain Management

DFN-8 5x6 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	36	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	23	A
I_{DM}	Pulsed Drain Current	144	A
EAS	Single Pulse Avalanche Energy ¹	137	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	45	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ²	---	85	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	3.4	°C/W

N-Channel Enhancement Mode Field Effect Transistor

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	11	14	m Ω
		$V_{GS}=4.5V$, $I_D=15A$	---	14	20	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	2	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=32V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	21	---	S
R_g	Gate Resistance	$V_{DS}=10V$, $V_{GS}=0V$, $f=1MHz$	---	5.2	---	Ω
Q_g	Total Gate Charge	$V_{DD}=30V$, $I_D=20A$ $V_{GS}=4.5V$	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	3	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V$, $V_{GS}=10V$, $R_D=1\Omega$ $R_{GEN}=3.3\Omega$, $I_D=20A$	---	10	---	ns
T_r	Rise Time		---	50	---	
$T_{d(off)}$	Turn-Off Delay Time		---	25	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1500	---	pF
C_{oss}	Output Capacitance		---	140	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	36	A
$I_{S,pulse}$	Diode pulse current		---	---	144	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=20A$, $T_J=25^{\circ}\text{C}$	---	0.87	1.3	V

Notes:

1. The EAS data shows Max. rating . The test condition is $V_{DD}=20V$, $V_{GS}=10V$, $L=1mH$, $I_{AS}=16.6A$.

2. Surface mounted on FR4 board.

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.