

### General Description

The CMSA012N06 uses advanced trench technology to provide excellent RDS (ON), low gate charge and minimize the loss of power conversion applications. This device is suitable to be used as the low side FET in SMPS, load switching and general purpose.

### Features

- RDS(ON)<9.6mΩ @ VGS=10V
- 100% avalanche tested
- Conduction losses reduced
- Switching losses reduced

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	60	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current	30	A
EAS	Single Pulse Avalanche Energy	45	mJ
I <sub>DM</sub>	Pulsed Drain Current	90	A
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	40	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 Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	---	55	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction -Case	---	3.3	°C/W

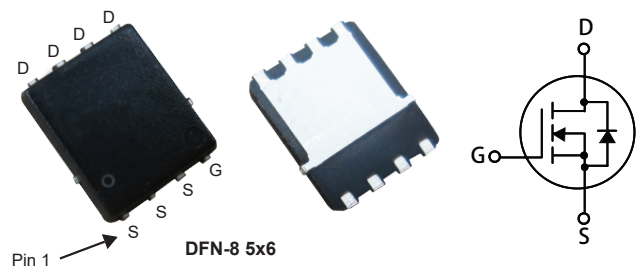
### Product Summary

BVDSS	RDSON	ID
60V	9.6mΩ	30A

### Applications

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

### DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA012N06	DFN-8 5*6	CMSA012N06

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	$V_{GS}=0V, I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	---	---	9.6	m $\Omega$
		$V_{GS}=4.5V, I_D=15A$	---	---	17.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	---	3.0	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	---	---	1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5V, I_D=20A$	---	18	---	S
$Q_g$	Total Gate Charge	$V_{DS}=30V, I_D=20A$ $V_{GS}=10V$	---	15	---	nC
$Q_{gs}$	Gate-Source Charge		---	3	---	
$Q_{gd}$	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V, V_{GS}=10V, R_L=1.5\Omega$ $R_{GEN}=3\Omega$	---	7	---	ns
$T_r$	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	23	---	
$T_f$	Fall Time		---	4	---	
$C_{iss}$	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$	---	850	---	pF
$C_{oss}$	Output Capacitance		---	300	---	
$C_{rss}$	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Diode continuous forward current	$V_G=V_D=0V, \text{Force Current}$	---	---	30	A
$I_{SM}$	Pulsed Source Current		---	---	90	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=28A, T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note:

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.