

## General Description

The CMSA15N06L 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

- $R_{DS(ON)} < 36\text{m}\Omega$  @  $V_{GS}=10\text{V}$
- 100% avalanche tested
- Conduction losses reduced
- Switching losses reduced

## Absolute Maximum Ratings

| Symbol                         | Parameter                            | Rating     | Units            |
|--------------------------------|--------------------------------------|------------|------------------|
| $V_{DS}$                       | Drain-Source Voltage                 | 60         | V                |
| $V_{GS}$                       | Gate-Source Voltage                  | $\pm 20$   | V                |
| $I_D @ T_C = 25^\circ\text{C}$ | Continuous Drain Current             | 18         | A                |
| EAS                            | Single Pulse Avalanche Energy        | 24         | mJ               |
| $I_{DM}$                       | Pulsed Drain Current                 | 54         | A                |
| $P_D @ T_C = 25^\circ\text{C}$ | Total Power Dissipation              | 40         | W                |
| $T_{STG}$                      | Storage Temperature Range            | -55 to 150 | $^\circ\text{C}$ |
| $T_J$                          | Operating Junction Temperature Range | -55 to 150 | $^\circ\text{C}$ |

## Thermal Data

| Symbol          | Parameter                               | Typ. | Max. | Unit               |
|-----------------|-----------------------------------------|------|------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | ---  | 52   | $^\circ\text{C/W}$ |
| $R_{\theta JC}$ | Thermal Resistance Junction -Case       | ---  | 4    | $^\circ\text{C/W}$ |

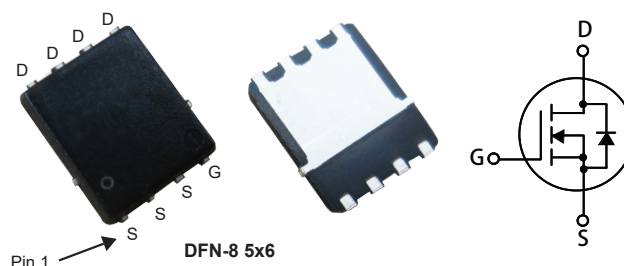
## Product Summary

| BVDSS | RDSON        | ID  |
|-------|--------------|-----|
| 60V   | 36m $\Omega$ | 18A |

## 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    |
|------------|-----------|------------|
| CMSA15N06L | DFN-8 5*6 | CMSA15N06L |

## 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      |
|--------------|-----------------------------------|----------------------------------------------------------------|------|------|-----------|-----------|
| $BV_{DS}$    | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=250\mu A$                                   | 60   | ---  | ---       | V         |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$ , $I_D=12A$                                       | ---  | ---  | 36        | $m\Omega$ |
|              |                                   | $V_{GS}=4.5V$ , $I_D=6A$                                       | ---  | ---  | 50        |           |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=250\mu A$                               | 1.0  | ---  | 3.0       | V         |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=58V$ , $V_{GS}=0V$                                     | ---  | ---  | 1         | $\mu A$   |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$                                 | ---  | ---  | $\pm 100$ | nA        |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=5V$ , $I_D=15A$                                        | ---  | 10   | ---       | S         |
| $Q_g$        | Total Gate Charge                 | $V_{DS}=48V$ , $I_D=17.6A$<br>$V_{GS}=10V$                     | ---  | 18   | ---       | nC        |
| $Q_{gs}$     | Gate-Source Charge                |                                                                | ---  | 4    | ---       |           |
| $Q_{gd}$     | Gate-Drain Charge                 |                                                                | ---  | 5    | ---       |           |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DD}=30V$ , $V_{GS}=10V$ , $I_D=17.6A$<br>$R_{GEN}=6\Omega$ | ---  | 12   | ---       | ns        |
| $T_r$        | Rise Time                         |                                                                | ---  | 5    | ---       |           |
| $T_{d(off)}$ | Turn-Off Delay Time               |                                                                | ---  | 32   | ---       |           |
| $T_f$        | Fall Time                         |                                                                | ---  | 5    | ---       |           |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=30V$ , $V_{GS}=0V$ , $f=1MHz$                          | ---  | 1200 | ---       | pF        |
| $C_{oss}$    | Output Capacitance                |                                                                | ---  | 80   | ---       |           |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                                                | ---  | 40   | ---       |           |

## Diode Characteristics

| Symbol   | Parameter                        | Conditions                                        | Min. | Typ. | Max. | Unit |
|----------|----------------------------------|---------------------------------------------------|------|------|------|------|
| $I_S$    | Diode continuous forward current | $V_G=V_D=0V$ , Force Current                      | ---  | ---  | 18   | A    |
| $I_{SM}$ | Pulsed Source Current            |                                                   | ---  | ---  | 54   | A    |
| $V_{SD}$ | Diode Forward Voltage            | $V_{GS}=0V$ , $I_S=1A$ , $T_J=25^{\circ}\text{C}$ | ---  | ---  | 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.