

## General Description

The CMSA6152 uses advanced technology to provide excellent RDS (ON) . This device is suitable to be used as the low side FET general purpose.

## Features

- Low On-Resistance
- 100% avalanche tested
- Low Gate Charge
- RoHS Compliant

## Absolute Maximum Ratings

| Symbol                      | Parameter                                  | Rating     | Units            |
|-----------------------------|--------------------------------------------|------------|------------------|
| $V_{DS}$                    | Drain-Source Voltage                       | 45         | V                |
| $V_{GS}$                    | Gate-Source Voltage                        | $\pm 20$   | V                |
| $I_D@T_C=25^\circ\text{C}$  | Continuous Drain Current                   | 100        | A                |
| $I_D@T_C=100^\circ\text{C}$ | Continuous Drain Current                   | 100        | A                |
| $I_{DM}$                    | Pulsed Drain Current                       | 400        | A                |
| EAS                         | Single Pulse Avalanche Energy <sup>1</sup> | 1108       | mJ               |
| $P_D@T_C=25^\circ\text{C}$  | Total Power Dissipation                    | 208        | 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(Steady-State) | ---  | 50   | $^\circ\text{C/W}$ |
| $R_{\theta JC}$ | Thermal Resistance Junction -Case(Steady-State)       | ---  | 0.6  | $^\circ\text{C/W}$ |

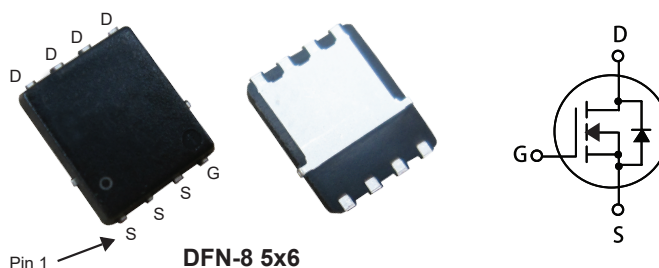
## Product Summary

| BVDSS | RDS(ON)       | ID   |
|-------|---------------|------|
| 45V   | 1.5m $\Omega$ | 100A |

## 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  |
|----------|-----------|----------|
| CMSA6152 | DFN-8 5*6 | CMSA6152 |

## 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    | $V_{GS}=0V$ , $I_D=250\mu A$                                           | 45   | ---  | ---       | V          |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$ , $I_D=20A$                                               | ---  | 1.2  | 1.5       | m $\Omega$ |
|              |                                   | $V_{GS}=4.5V$ , $I_D=20A$                                              | ---  | 1.6  | 2.1       |            |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=250\mu A$                                       | 1    | ---  | 3         | V          |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=45V$ , $V_{GS}=0V$                                             | ---  | ---  | 1         | $\mu A$    |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$                                         | ---  | ---  | $\pm 100$ | nA         |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=10V$ , $I_D=20A$                                               | ---  | 44   | ---       | S          |
| $R_g$        | Gate Resistance                   | $V_{DS}=0V$ , $V_{GS}=0V$ , $f=1MHz$                                   | ---  | 2.5  | ---       | $\Omega$   |
| $Q_g$        | Total Gate Charge                 | $V_{DS}=22.5V$ , $I_D=20A$<br>$V_{GS}=10V$                             | ---  | 110  | ---       | nC         |
| $Q_{gs}$     | Gate-Source Charge                |                                                                        | ---  | 24   | ---       |            |
| $Q_{gd}$     | Gate-Drain Charge                 |                                                                        | ---  | 8    | ---       |            |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=22.5V$ , $V_{GS}=10V$<br>$R_{GEN}=3\Omega$ , $R_L=1.125\Omega$ | ---  | 16   | ---       | ns         |
| $T_r$        | Rise Time                         |                                                                        | ---  | 6    | ---       |            |
| $T_{d(off)}$ | Turn-Off Delay Time               |                                                                        | ---  | 75   | ---       |            |
| $T_f$        | Fall Time                         |                                                                        | ---  | 7    | ---       |            |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=25V$ , $V_{GS}=0V$ , $f=1MHz$                                  | ---  | 8500 | ---       | pF         |
| $C_{oss}$    | Output Capacitance                |                                                                        | ---  | 1100 | ---       |            |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                                                        | ---  | 400  | ---       |            |

## Diode Characteristics

| Symbol        | Parameter                        | Conditions                                         | Min. | Typ. | Max. | Unit |
|---------------|----------------------------------|----------------------------------------------------|------|------|------|------|
| $I_S$         | Diode continuous forward current | $V_G=V_D=0V$ , Force Current                       | ---  | ---  | 100  | A    |
| $I_{S,pulse}$ | Diode pulse current              |                                                    | ---  | ---  | 400  | A    |
| $V_{SD}$      | Diode Forward Voltage            | $V_{GS}=0V$ , $I_F=20A$ , $T_J=25^{\circ}\text{C}$ | ---  | 0.77 | 1.2  | V    |

Note :

1.The EAS data shows Max. rating . The test condition is  $V_{DD}=30V$ ,  $V_{GS}=10V$ ,  $L=0.5mH$ ,  $I_{AS}=66.6A$ .

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

## N-Channel Enhancement Mode Field Effect Transistor

## Typical Characteristics

