

### General Description

The 060N10 uses advanced technology and design to provide excellent RDS(ON) .

This device is suitable for PWM, load switching and general purpose applications.

### Features

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

### Absolute Maximum Ratings

| Symbol                 | Parameter                                  | Rating     | Units       |
|------------------------|--------------------------------------------|------------|-------------|
| $V_{DS}$               | Drain-Source Voltage                       | 100        | V           |
| $V_{GS}$               | Gate-Source Voltage                        | $\pm 20$   | V           |
| $I_D@T_C=25^{\circ}C$  | Continuous Drain Current                   | 90         | A           |
| $I_D@T_C=100^{\circ}C$ | Continuous Drain Current                   | 72         | A           |
| $I_{DM}$               | Pulsed Drain Current                       | 360        | A           |
| EAS                    | Single Pulse Avalanche Energy <sup>1</sup> | 612        | mJ          |
| $P_D$                  | Total Power Dissipation                    | 83         | W           |
| $T_{STG}$              | Storage Temperature Range                  | -55 to 175 | $^{\circ}C$ |
| $T_J$                  | Operating Junction Temperature Range       | -55 to 175 | $^{\circ}C$ |

### Thermal Data

| Symbol          | Parameter                           | Typ. | Max. | Unit          |
|-----------------|-------------------------------------|------|------|---------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient | ---  | 60   | $^{\circ}C/W$ |
| $R_{\theta JC}$ | Thermal Resistance Junction -Case   | ---  | 1.8  | $^{\circ}C/W$ |

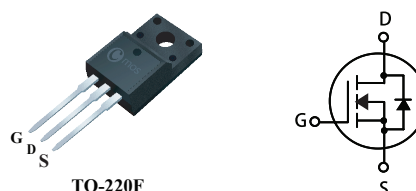
### Product Summary

| BVDSS | RDS(ON)       | ID  |
|-------|---------------|-----|
| 100V  | 7.0m $\Omega$ | 90A |

### Applications

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

### TO-220F Pin Configuration



| Type      | Package | Marking   |
|-----------|---------|-----------|
| CMF060N10 | TO-220F | CMF060N10 |

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

| Symbol       | Parameter                         | Conditions                                   | Min. | Typ. | Max.      | Unit       |
|--------------|-----------------------------------|----------------------------------------------|------|------|-----------|------------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=250\mu A$                 | 100  | ---  | ---       | V          |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=10V$ , $I_D=20A$                     | ---  | ---  | 7.0       | m $\Omega$ |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=250\mu A$             | 2    | ---  | 4         | V          |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=90V$ , $V_{GS}=0V$                   | ---  | ---  | 1         | $\mu A$    |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$               | ---  | ---  | $\pm 100$ | nA         |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=10V$ , $I_D=25A$                     | ---  | 26   | ---       | S          |
| $R_g$        | Gate Resistance                   | $V_{DS}=0V$ , $V_{GS}=0V$ , $f=1\text{MHz}$  | ---  | 2.5  | ---       | $\Omega$   |
| $Q_g$        | Total Gate Charge                 | $I_D=20A$                                    | ---  | 39   | ---       | nC         |
| $Q_{gs}$     | Gate-Source Charge                | $V_{DS}=50V$                                 | ---  | 13   | ---       |            |
| $Q_{gd}$     | Gate-Drain Charge                 | $V_{GS}=10V$                                 | ---  | 13   | ---       |            |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=50V$                                 | ---  | 18   | ---       | ns         |
| $T_r$        | Rise Time                         | $R_L=2.5\Omega$                              | ---  | 25   | ---       |            |
| $T_{d(off)}$ | Turn-Off Delay Time               | $R_G=3.0\Omega$                              | ---  | 31   | ---       |            |
| $T_f$        | Fall Time                         | $V_{GS}=10V$                                 | ---  | 25   | ---       |            |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=50V$ , $V_{GS}=0V$ , $f=1\text{MHz}$ | ---  | 3500 | ---       | pF         |
| $C_{oss}$    | Output Capacitance                |                                              | ---  | 1250 | ---       |            |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                              | ---  | 80   | ---       |            |

## Diode Characteristics

| Symbol   | Parameter                 | Conditions                                         | Min. | Typ. | Max. | Unit |
|----------|---------------------------|----------------------------------------------------|------|------|------|------|
| $I_S$    | Continuous Source Current | $V_G=V_D=0V$ , Force Current                       | ---  | ---  | 90   | A    |
| $I_{SM}$ | Pulsed Source Current     |                                                    | ---  | ---  | 360  | A    |
| $V_{SD}$ | Diode Forward Voltage     | $V_{GS}=0V$ , $I_S=50A$ , $T_J=25^{\circ}\text{C}$ | ---  | ---  | 1.2  | V    |

## Notes:

1.The EAS data shows Max. rating . The test condition is  $V_{DD}=40V$  ,  $V_{GS}=10V$  ,  $L=0.5\text{mH}$  ,  $I_D=49.5A$

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