

### MAIN CHARACTERISTICS

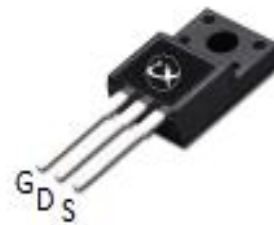
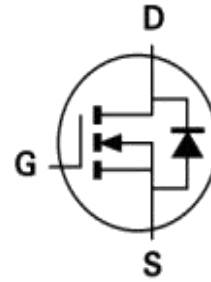
|                                |               |
|--------------------------------|---------------|
| $I_D$                          | 15A           |
| $V_{DSS}$                      | 650V          |
| $R_{DS(ON)}$ -Typ $V_{GS}=10V$ | 226m $\Omega$ |

### FEATURES

- Super Junction technology
- 100% UIS tested
- 100%  $R_g/C_{iss}/C_{oss}/C_{rss}$  tested(low  $C_{rss}$ )
- Low  $R_{DS(ON)}$ &FOM
- Fast-Recovery body diode

### APPLICATIONS

- PWM Application
- Load Switch
- EV Charger
- Power Management



TO-220F

### Product specification classification

| Part Number | Package | Mode Name  | Pack |
|-------------|---------|------------|------|
| LCF65R190F  | TO-220F | LCF65R190F | Tube |

### Maximum Ratings at Tc=25°C unless otherwise specified

| Parameter                               | Symbol          | Value       | Unit |
|-----------------------------------------|-----------------|-------------|------|
| Drain-Source Voltage                    | $V_{DS}$        | 650         | V    |
| Gate-Source Voltage                     | $V_{GS}$        | ±30         | V    |
| Continue Drain Current (Tc=25°C)        | $I_D$           | 15          | A    |
| Continue Drain Current (Tc=100°C)       |                 | 9.5         | A    |
| Pulsed Drain Current (Note1)            | $I_{DM}$        | 45          | A    |
| Power Dissipation                       | $P_D$           | 33          | W    |
| Single Pulse Avalanche Energy (Note1)   | $E_{AS}$        | 605         | mJ   |
| Operating Temperature Range             | $T_J$           | -50 to +150 | °C   |
| Storage Temperature Range               | $T_{STG}$       | -50 to +150 | °C   |
| Thermal Resistance, Junction to Case    | $R_{\theta JC}$ | 3.7         | °C/W |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 62.5        | °C/W |

Note1:Pulse test: 300  $\mu$ s pulse width, 2 % duty cycle

### Electrical Characteristics at Tc=25°C unless otherwise specified

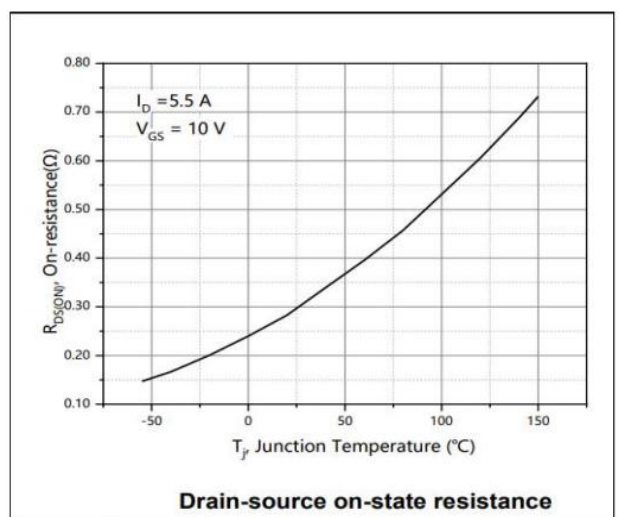
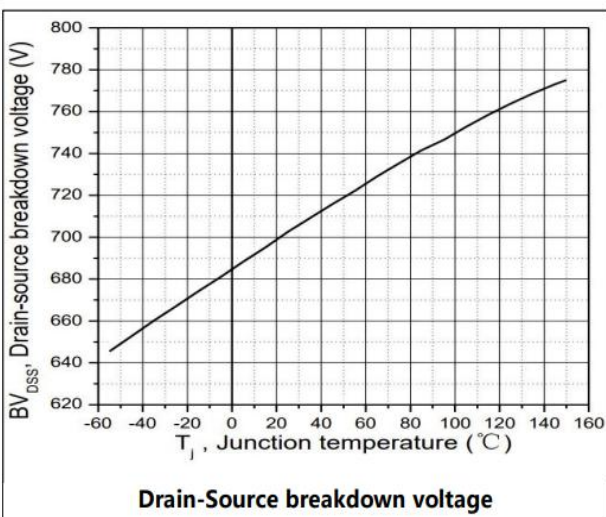
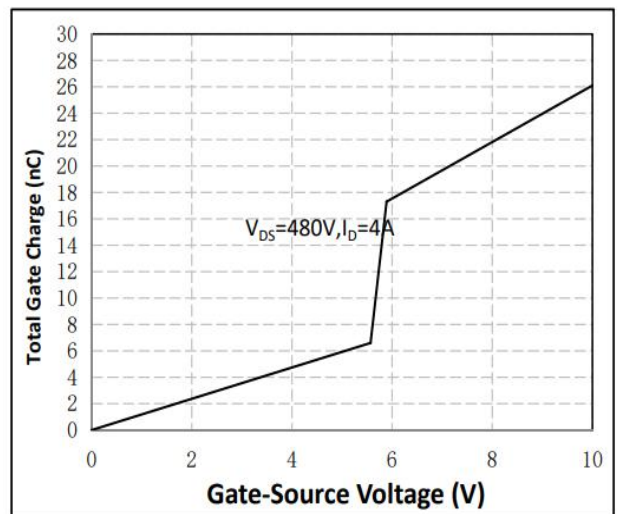
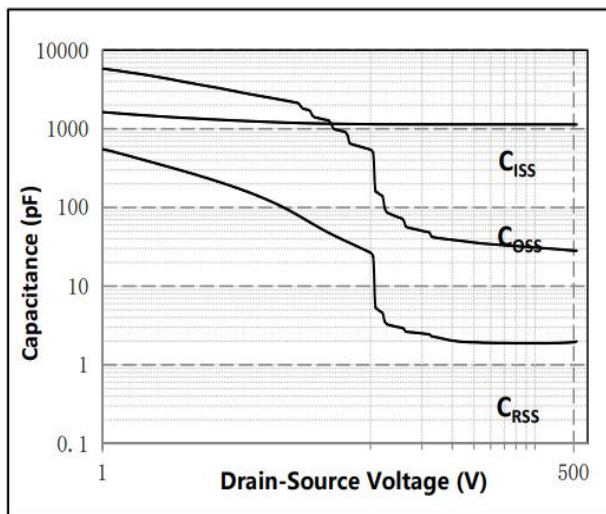
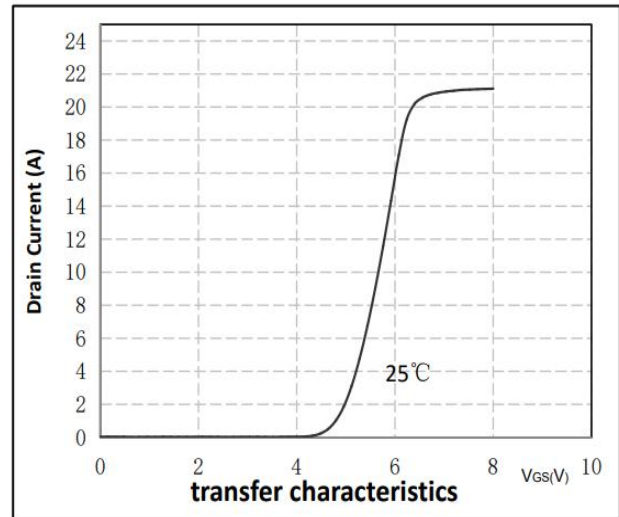
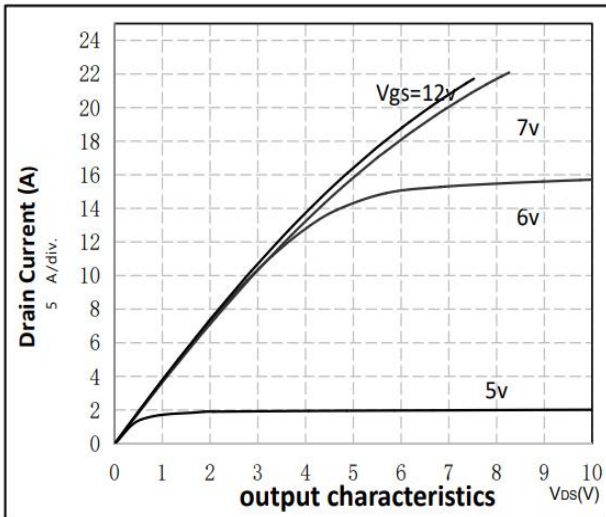
| Parameter                        | Test Condition                                                                  | Symbol       | Min | Typ  | Max | Unit          |
|----------------------------------|---------------------------------------------------------------------------------|--------------|-----|------|-----|---------------|
| Drain-Source Breakdown Voltage   | $V_{GS} = 0 \text{ V}, I_D = 250 \mu\text{A}$                                   | $BV_{DSS}$   | 650 | -    | -   | V             |
| Drain-Source Leakage Current     | $V_{DS} = 650 \text{ V}, V_{GS} = 0 \text{ V}$                                  | $I_{DSS}$    | -   | -    | 1   | $\mu\text{A}$ |
| Gate Leakage Current             | $V_{GS} = \pm 30 \text{ V}, V_{DS} = 0 \text{ V}$                               | $I_{GSS}$    | -   | -    | ±1  | $\mu\text{A}$ |
| Gate-Source Threshold Voltage    | $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$                                        | $V_{GS(th)}$ | 2.5 | 3.6  | 4.5 | V             |
| Drain-Source On-State Resistance | $V_{GS}=10\text{V}, I_D=10\text{A}$                                             | $R_{DS(on)}$ | -   | 226  | 260 | m $\Omega$    |
| Input Capacitance                | $V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$                          | $C_{iss}$    | -   | 1135 | -   | pF            |
| Output Capacitance               |                                                                                 | $C_{oss}$    | -   | 866  | -   | pF            |
| Reverse Transfer Capacitance     |                                                                                 | $C_{rss}$    | -   | 39   | -   | pF            |
| Turn-on Delay Time(Note2)        | $V_{DS} = 400\text{V}, I_D = 18 \text{ A}, V_{GS} = 10\text{V}, R_G = 20\Omega$ | $t_{d(ON)}$  | -   | 28   | -   | ns            |
| Rise Time(Note2)                 |                                                                                 | $t_r$        | -   | 17   | -   | ns            |
| Turn-Off Delay Time(Note2)       |                                                                                 | $t_{d(OFF)}$ | -   | 43   | -   | ns            |
| Fall Time(Note2)                 |                                                                                 | $t_f$        | -   | 18   | -   | ns            |
| Total Gate Charge(Note2)         | $V_{DS} = 400\text{V}, V_{GS} = 10\text{V}, I_D = 8\text{A}$                    | $Q_G$        | -   | 27.5 | -   | nC            |
| Gate to Source Charge(Note2)     |                                                                                 | $Q_{GS}$     | -   | 5.8  | -   | nC            |
| Gate to Drain Charge(Note2)      |                                                                                 | $Q_{GD}$     | -   | 13   | -   | nC            |

### Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

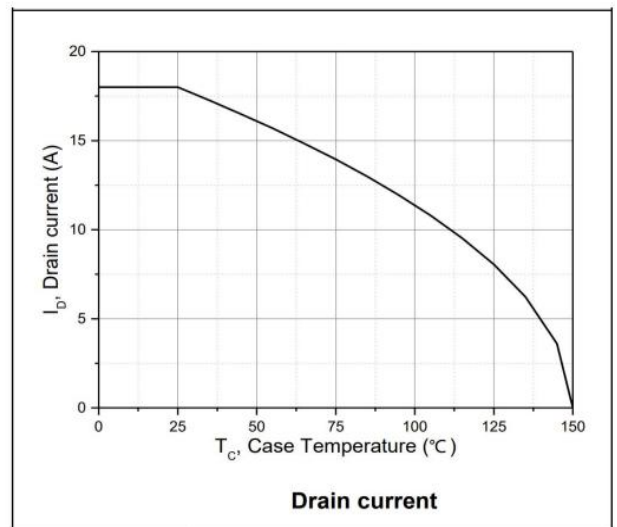
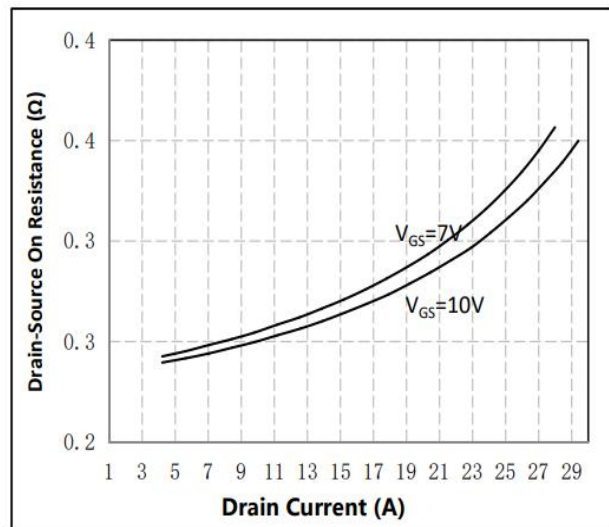
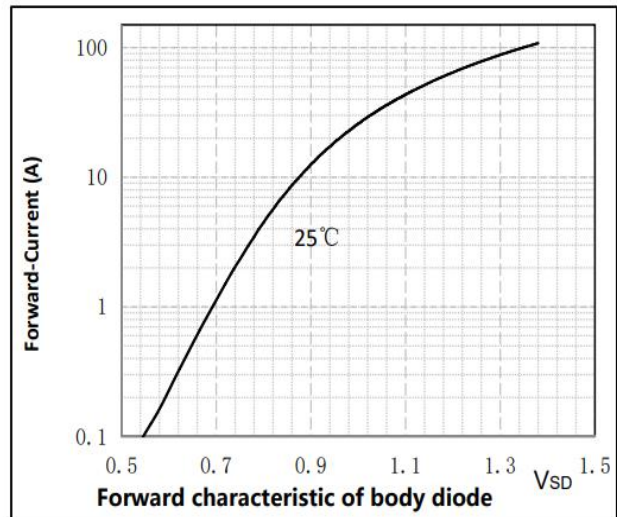
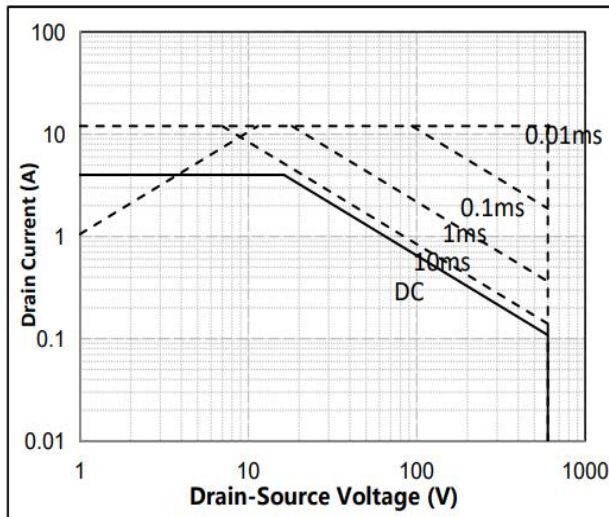
| Parameter                                              | Test Condition                                                        | Symbo    | Min. | Typ. | Max. | Unit          |
|--------------------------------------------------------|-----------------------------------------------------------------------|----------|------|------|------|---------------|
| Maximum Continuous Drain -Source Diode Forward Current |                                                                       | $I_S$    | -    | 15   | -    | A             |
| Maximum Pulsed Drain-Source Diode Forward Current      |                                                                       | $I_{SM}$ | -    | 45   | -    | A             |
| Drain-Source Diode Forward Voltage                     | $V_{GS}=0\text{V}, I_S=10\text{A}, T_J=25^\circ\text{C}$              | $V_{SD}$ | -    | 0.9  | 1.2  | V             |
| Reverse recovery time                                  | $T_J=25^\circ\text{C}, I_F=15\text{A}, di/dt=100\text{A}/\mu\text{s}$ | $t_{rr}$ | -    | 112  | -    | ns            |
| Reverse recovery charge                                |                                                                       | $Q_{rr}$ | -    | 0.68 | -    | $\mu\text{C}$ |

Note2:Pulse test: 300  $\mu$ s pulse width, 2 % duty cycle

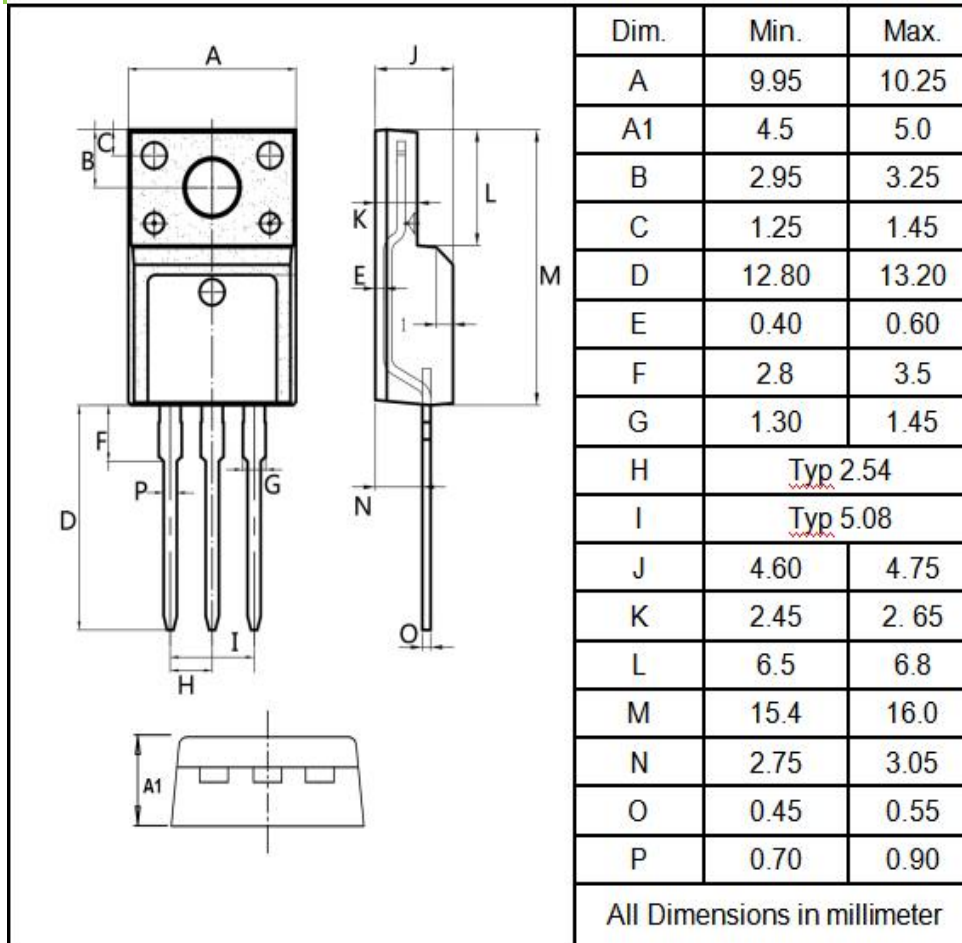
### RATINGS AND CHARACTERISTIC CURVES



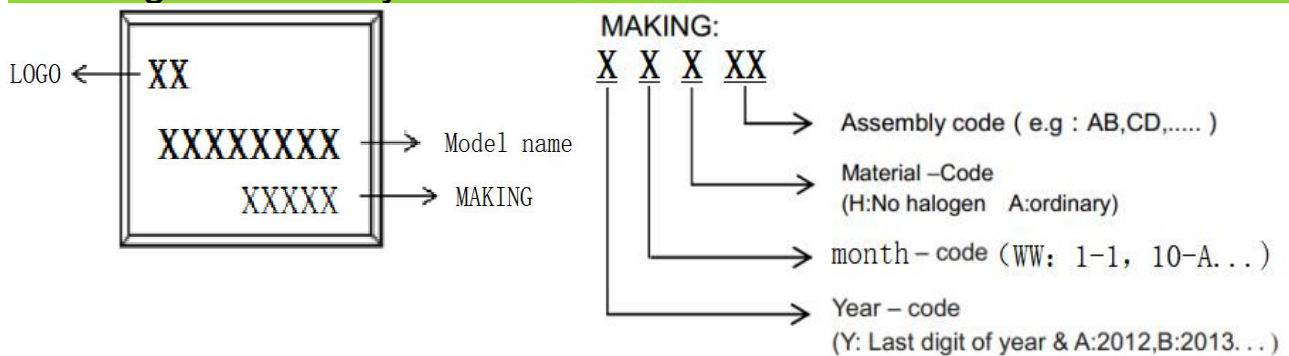
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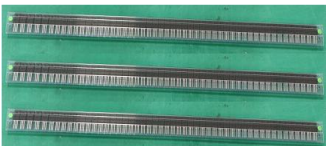
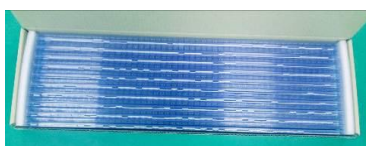
### Package Outline Dimensions millimeters



### Marking on the body



### packing instruction

| PKG     | 最小包装                                                                                | 内盒                                                                                   | 外箱                                                                                    |
|---------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| TO-220F |  |  |  |
|         | 50pcs/管                                                                             | 1000pcs/盒                                                                            | 5000pcs/箱                                                                             |



# LCF65R190F

## N-channel Super Junction MOSFET

### Notice

All product, product specifications and data are subject to change without notice to improve. The right to explain is owned by LINGXUN electronics company.

Confirm that operation temperature is within the specified range described in the product specification. Avoid applying power exceeding normal rated

power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

<http://www.lxmicro.com>

### Revision History

| Rev | Changes       | Date      |
|-----|---------------|-----------|
| 1.0 | First version | 2026-1-10 |