

**isc N-Channel MOSFET Transistor****IIPA65R150CFD****DESCRIPT**

- Low Drain-Source On-Resistance  
:  $R_{DS(on)} < 0.15 \Omega$  (Max)
- Drain Current  $I_D = 22A @ T_C = 25^\circ C$
- New technology for high voltage device
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

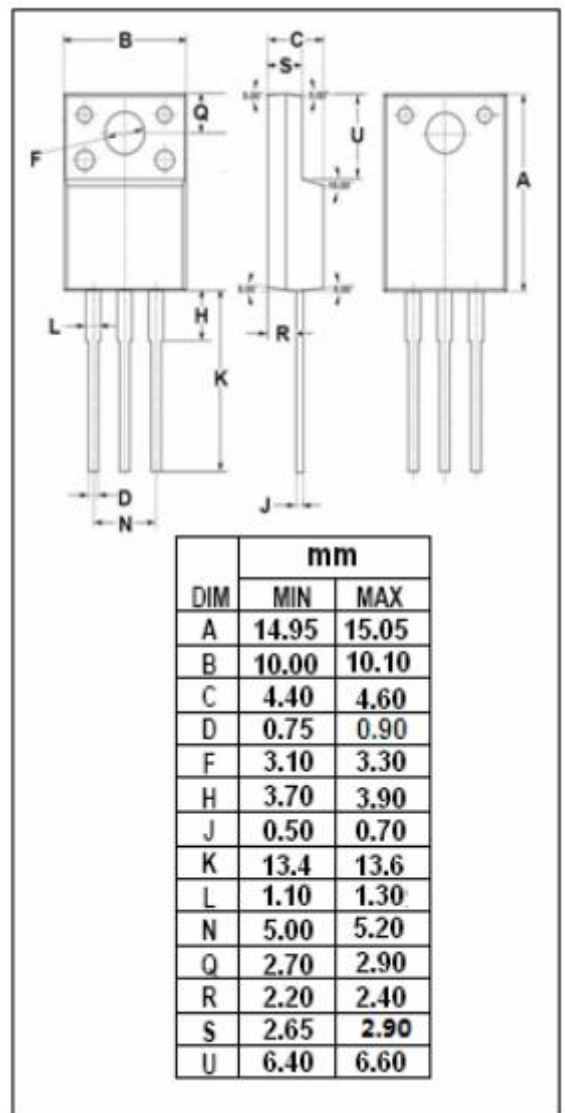
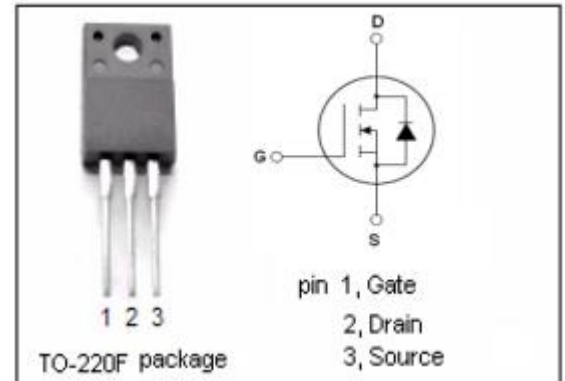
- Power factor correction
- Switched mode power supplies
- Uninterruptible power supply

**ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )**

| SYMBOL    | PARAMETER                                    | VALUE    | UNIT       |
|-----------|----------------------------------------------|----------|------------|
| $V_{DS}$  | Drain-Source Voltage ( $V_{GS}=0$ )          | 650      | V          |
| $V_{GS}$  | Gate-Source Voltage                          | $\pm 20$ | V          |
| $I_D$     | Drain Current-continuous@ $T_C = 25^\circ C$ | 22       | A          |
| $I_{dM}$  | Pulsed drain current                         | 72       | A          |
| $P_{tot}$ | Total Dissipation@ $T_C = 25^\circ C$        | 34.7     | W          |
| $T_j$     | Max. Operating Junction Temperature          | 150      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature Range                    | -55~150  | $^\circ C$ |

**• THERMAL CHARACTERISTICS**

| SYMBOL       | PARAMETER                            | MAX | UNIT         |
|--------------|--------------------------------------|-----|--------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 3.6 | $^\circ C/W$ |



## isc N-Channel Mosfet Transistor

## IIPA65R150CFD

• ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C)

| SYMBOL               | PARAMETER                        | CONDITIONS                                                 | MIN | TYP | MAX  | UNIT |
|----------------------|----------------------------------|------------------------------------------------------------|-----|-----|------|------|
| V <sub>(BR)DSS</sub> | Drain-Source Breakdown Voltage   | V <sub>GS</sub> = 0; I <sub>D</sub> = 1mA                  | 650 |     |      | V    |
| V <sub>GS(TH)</sub>  | Gate Threshold Voltage           | V <sub>DS</sub> = V <sub>GS</sub> ; I <sub>D</sub> = 0.9mA | 3.5 |     | 4.5  | V    |
| R <sub>DS(ON)*</sub> | Drain-Source On-stage Resistance | V <sub>GS</sub> = 10V; I <sub>D</sub> = 9.3A               |     |     | 0.15 | Ω    |
| I <sub>GSS</sub>     | Gate Source Leakage Current      | V <sub>GS</sub> = ±20V; V <sub>DS</sub> = 0                |     |     | ±100 | nA   |
| I <sub>DSS</sub>     | Zero Gate Voltage Drain Current  | V <sub>DS</sub> = 650V; V <sub>GS</sub> = 0                |     |     | 1    | uA   |
| V <sub>SD*</sub>     | Diode Forward Voltage            | I <sub>F</sub> = 14.0A; V <sub>GS</sub> = 0                |     |     | 0.9  | V    |

## DYNAMIC PARAMETERS

|                  |                              |                                                     |  |      |  |    |
|------------------|------------------------------|-----------------------------------------------------|--|------|--|----|
| C <sub>ISS</sub> | Input Capacitance            | V <sub>GS</sub> =0V, V <sub>DS</sub> =50V, f=1.0MHZ |  | 2600 |  | pF |
| C <sub>OSS</sub> | Output Capacitance           |                                                     |  | 95   |  | pF |
| C <sub>RSS</sub> | Reverse Transfer Capacitance |                                                     |  | 7    |  | pF |

## SWITCHING PARAMETERS

|                     |                       |                                                                                      |  |     |  |    |
|---------------------|-----------------------|--------------------------------------------------------------------------------------|--|-----|--|----|
| Q <sub>G</sub>      | Total Gate Charge     | V <sub>GS</sub> =480V, V <sub>DS</sub> =10V, I <sub>D</sub> =21A                     |  | 48  |  | nC |
| Q <sub>GS</sub>     | Gate to Source Charge |                                                                                      |  | 17  |  | nC |
| Q <sub>GD</sub>     | Gate to Drain Charge  |                                                                                      |  | 14  |  | nC |
| t <sub>D(ON)</sub>  | Turn-ON Delay Time    | V <sub>DD</sub> =380V, I <sub>D</sub> =11A, V <sub>GS</sub> =10V, R <sub>G</sub> =4Ω |  | 11  |  | nS |
| t <sub>R</sub>      | Rise Time             |                                                                                      |  | 6   |  | nS |
| t <sub>D(Off)</sub> | Turn-OFF Delay Time   |                                                                                      |  | 61  |  | nS |
| t <sub>F</sub>      | Turn-OFF Fall-Time    |                                                                                      |  | 4.5 |  | nS |

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