

**isc N-Channel MOSFET Transistor**
**IRLR7821, IIRLR7821**
**• FEATURES**

- Static drain-source on-resistance:  
 $R_{DS(on)} \leq 10m\Omega$
- Enhancement mode:
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

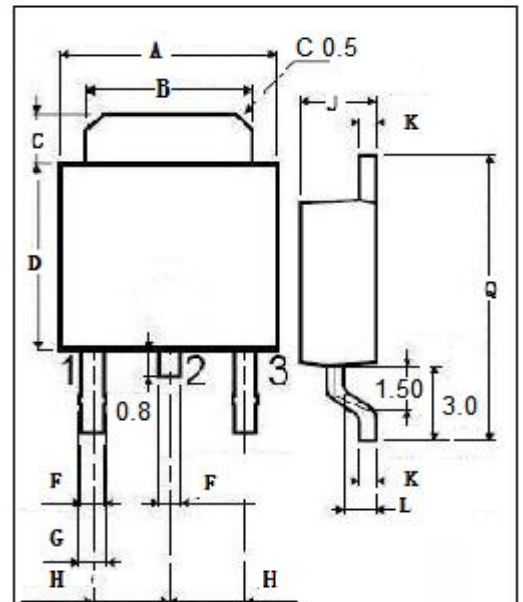
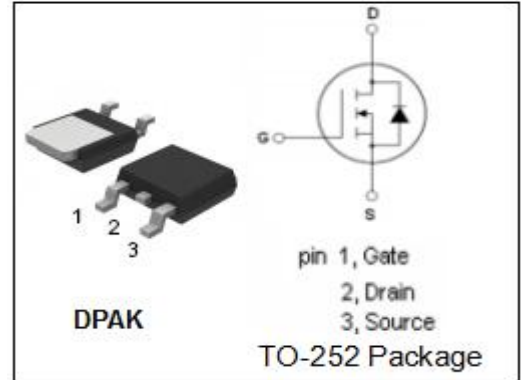
- High Frequency Synchronous Buck Converters For Computer Processor Power

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

| SYMBOL    | PARAMETER                            | VALUE    | UNIT       |
|-----------|--------------------------------------|----------|------------|
| $V_{DSS}$ | Drain-Source Voltage                 | 30       | V          |
| $V_{GS}$  | Gate-Source Voltage                  | $\pm 20$ | V          |
| $I_D$     | Drain Current-Continuous             | 65       | A          |
| $I_{DM}$  | Drain Current-Single Pulsed          | 260      | A          |
| $P_D$     | Total Dissipation @ $T_c=25^\circ C$ | 75       | W          |
| $T_j$     | Max. Operating Junction Temperature  | 175      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                  | -55~175  | $^\circ C$ |

**• THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                             | MAX | UNIT         |
|---------------|---------------------------------------|-----|--------------|
| $R_{th(j-c)}$ | Channel-to-case thermal resistance    | 2.0 | $^\circ C/W$ |
| $R_{th(j-a)}$ | Channel-to-ambient thermal resistance | 110 | $^\circ C/W$ |



| DIM | mm   |      |
|-----|------|------|
|     | MIN  | MAX  |
| A   | 6.40 | 6.60 |
| B   | 5.20 | 5.40 |
| C   | 1.15 | 1.35 |
| D   | 5.70 | 6.10 |
| F   | 0.65 |      |
| G   | 0.75 |      |
| H   | 2.10 | 2.50 |
| J   | 2.10 | 2.40 |
| K   | 0.40 | 0.60 |
| L   | 0.90 | 1.10 |
| Q   | 9.90 | 10.1 |

## isc N-Channel MOSFET Transistor

## IRLR7821, IIRLR7821

## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL       | PARAMETER                      | CONDITIONS                            | MIN | TYP | MAX       | UNIT          |
|--------------|--------------------------------|---------------------------------------|-----|-----|-----------|---------------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage | $V_{GS}=0V; I_D=250\ \mu\text{A}$     | 30  |     |           | V             |
| $V_{GS(th)}$ | Gate Threshold Voltage         | $V_{DS}=V_{GS}; I_D=250\ \mu\text{A}$ | 1.0 |     |           | V             |
| $R_{DS(on)}$ | Drain-Source On-Resistance     | $V_{GS}=10V; I_D=15A$                 |     |     | 10        | $m\Omega$     |
| $I_{GSS}$    | Gate-Source Leakage Current    | $V_{GS}=\pm 20V$                      |     |     | $\pm 0.1$ | $\mu\text{A}$ |
| $I_{DSS}$    | Drain-Source Leakage Current   | $V_{DS}=24V; V_{GS}=0V$               |     |     | 1         | $\mu\text{A}$ |
| $V_{SD}$     | Diode forward voltage          | $I_s=12A, V_{GS}=0V$                  |     |     | 1.0       | V             |

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