

MOSFETs for Industrial Applications

Features and Benefits:

- Low on resistance per silicon area
- Optimized for both fast switching and low gate charge
- Excellent gate, avalanche and dynamic dv/dt ruggedness

Market/Applications:

- DC Motor Drives
- Uninterruptible Power Supplies (UPS)
- DC-DC Converters
- Power Tools
- Electric Bikes

The IR Advantage:

- Best die to footprint ratio
- Industry's lowest $R_{DS(on)}$
- Largest range of packages up to 250V
- Industry-leading quality

Your **FIRST CHOICE**
for Performance



Large battery driven applications, such as forklifts, uninterruptible power supply (UPS) systems, and solar inverters, as well as smaller power driven systems like power tools, and electric bikes are pushing the limits of efficiency and reliability as the need for more power and extended battery life continues to be a requirement of newer designs. IR's latest power MOSFETs meet the demands of these applications by offering the best performing devices in the most reliable packages on the market.

IR's latest T0247 devices, for example, offer the lowest $R_{DS(on)}$ in the market for a through hole package. They also carry a maximum current rating of 195A. Superior $R_{DS(on)}$ ratings, of roughly 20%-50% lower than the closest competitor, makes these parts well suited for high power applications where multiple devices are needed such as primary or secondary side switching, inverters and high power class D Audio. Conduction losses are minimal compared to other T0247 or T0220 devices on the market, while very low $R_{DS(on)}$ coupled with the large backside make these parts ideal for applications where multiple T0220 or T0247 devices are used to help reduce overall part count, and save cost in heat-sinking.

In addition, IR's latest MOSFETs in T0220 and D²PAK, from 40V to 75V have been constructed to withstand continuous drain currents of 195A, approximately 60% more than the industry standard of 120A. Furthermore, the 7-Pin D²PAK is rated at 240A and provides a reduction in $R_{DS(on)}$ for the same device in a D²PAK from 40V-100V. It consumes the same area as a standard D²PAK, and because it has lower $R_{DS(on)}$, it offers more power density for the same area. The improved current ratings of 195A and 240A also allow designers more flexibility when paralleling devices since each device can safely handle more current than competing devices to help reduce the overall number of devices needed.

7-Pin D²PAK : A Unique Alternative

7-Pin D²PAK advantages over standard D²PAK

- Up to 0.5mΩ less R_{DS(on)}
- Higher current handling capability
- Improved power density



| IRF3004PBF 40V VDS | |
|-----------------------|---------------------|
| Id | R _{DS(on)} |
| 195A | 1.75mΩ |

| IRFS3004-7PPBF 40V VDS | |
|---------------------------|---------------------|
| Id | R _{DS(on)} |
| 240A | 1.25mΩ |

| Part Number | VDS (V) | RDS(on) Max. @VGS=10V (mΩ) | Id (A) | Qg (nC) | Package |
|----------------|---------|----------------------------|--------|---------|----------------------|
| IRF1324S-7PPBF | 24 | 1.0 | 240 | 180 | D ² PAK-7 |
| IRF1324SPBF | 24 | 1.65 | 195 | 160 | D ² PAK |
| IRFS3004-7PPBF | 40 | 1.25 | 240 | 160 | D ² PAK-7 |
| IRFP4004PBF | 40 | 1.7 | 195 | 220 | T0-247 |
| IRFS3004PBF | 40 | 1.75 | 195 | 160 | D ² PAK |
| IRFB3004PBF | 40 | 1.75 | 195 | 160 | T0-220 |
| IRFR4104PBF | 40 | 5.5 | 42 | 59 | D-PAK |
| IRFS3006-7PPBF | 60 | 2.1 | 240 | 200 | D ² PAK-7 |
| IRFS3006PBF | 60 | 2.5 | 195 | 200 | D ² PAK |
| IRFB3006PBF | 60 | 2.5 | 195 | 200 | T0-220 |
| IRFR1018EPBF | 60 | 8.4 | 79 | 69 | D-PAK |
| IRFP4368PBF | 75 | 1.85 | 195 | 380 | T0-247 |
| IRFS3107-7PPBF | 75 | 2.6 | 240 | 160 | D ² PAK-7 |
| IRFS3107PBF | 75 | 3.0 | 195 | 160 | D ² PAK |
| IRFB3077PBF | 75 | 3.3 | 210 | 160 | T0-220 |
| IRFP4468PBF | 100 | 2.6 | 195 | 360 | T0-247 |
| IRFS4010-7PPBF | 100 | 4.0 | 190 | 150 | D ² PAK-7 |
| IRFB4110PBF | 100 | 4.5 | 120 | 150 | T0-220 |
| IRFS4010PBF | 100 | 4.7 | 180 | 143 | D-PAK |
| IRFP4568PBF | 150 | 5.9 | 171 | 151 | T0-247 |
| IRFB4115PBF | 150 | 11.0 | 104 | 77 | T0-220 |
| IRFS4115PBF | 150 | 12.1 | 99 | 77 | D ² PAK |
| IRFP4668PBF | 200 | 9.7 | 130 | 161 | T0-247 |
| IRFB4127PBF | 200 | 20.0 | 76 | 100 | T0-220 |
| IRFS4127PBF | 200 | 21.0 | 76 | 110 | D ² PAK |
| IRFP4768PBF | 250 | 17.5 | 93 | 180 | T0-247 |
| IRFB4332PBF | 250 | 33.0 | 60 | 99 | T0-220 |
| IRFS4229PBF | 250 | 48.0 | 45 | 72 | D ² PAK |