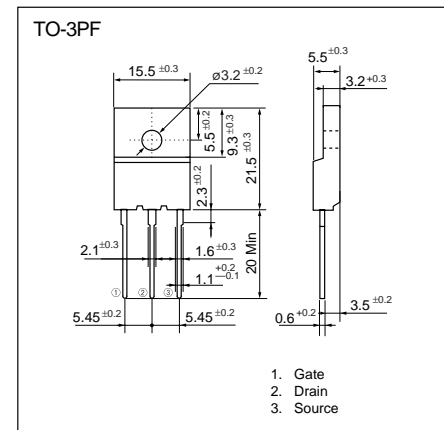


N-CHANNEL SILICON POWER MOS-FET**■ Features**

High speed switching
 Low on-resistance
 No secondary breakdown
 Low driving power
 Avalanche-proof

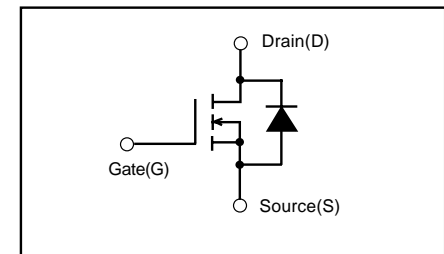
■ Applications

Switching regulators
 UPS (Uninterruptible Power Supply)
 DC-DC converters

**■ Maximum ratings and characteristic Absolute maximum ratings**

● (Tc=25°C unless otherwise specified)

| Item | Symbol | Rating | Unit |
|---|-------------------------------------|---------------------|------|
| Drain-source voltage | V _{DS} | 60 | V |
| Continuous drain current | I _D | ±100 | A |
| Pulsed drain current | I _D (puls) | ±400 | A |
| Gate-source voltage | V _{GS} | ±30 | V |
| Maximum Avalanche Energy | E _{AV} *1 | 1268.3 | mJ |
| Max. power dissipation | P _D | 125 | W |
| Operating and storage temperature range | T _{ch} T _{stg} | +150 -55 to +150 | °C |

*1 L=0.169mH, V_{CC}=24V**■ Equivalent circuit schematic****● Electrical characteristics (Tc =25°C unless otherwise specified)**

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|----------------------------------|---------------------|--|------|------|------|-------|
| Drain-source breakdown voltage | BV _{DSS} | I _D =1mA V _{GS} =0V | 60 | | | V |
| Gate threshold voltage | V _{GS(th)} | I _D =10mA V _{DS} =V _{GS} | 2.5 | 3.0 | 3.5 | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =60V T _{ch} =25°C | | 10 | 500 | μA |
| | | V _{GS} =0V T _{ch} =125°C | | 0.2 | 1.0 | mA |
| Gate-source leakage current | I _{GSS} | V _{GS} =±30V V _{DS} =0V | | 10 | 100 | nA |
| Drain-source on-state resistance | R _{DS(on)} | I _D =50A V _{GS} =10V | | 5.7 | 7.8 | mΩ |
| Forward transconductance | g _{fs} | I _D =50A V _{DS} =25V | 25 | 55 | | S |
| Input capacitance | C _{iss} | V _{DS} =25V | | 5400 | 8100 | pF |
| Output capacitance | C _{oss} | V _{GS} =0V | | 2100 | 3150 | pF |
| Reverse transfer capacitance | C _{rss} | f=1MHz | | 550 | 830 | pF |
| Turn-on time t _{on} | td(on) | V _{CC} =30V I _D =100A | | 29 | 50 | ns |
| | t _r | V _{GS} =10V | | 200 | 350 | ns |
| Turn-off time t _{off} | td(off) | R _{GS} =10 Ω | | 160 | 240 | ns |
| | t _f | | | 150 | 230 | ns |
| Avalanche capability | I _{AV} | L=100 μH T _{ch} =25°C | 100 | | | A |
| Diode forward on-voltage | V _{SD} | I _F =100A V _{GS} =0V T _{ch} =25°C | | 1.0 | 1.5 | V |
| Reverse recovery time | t _{rr} | I _F =50A V _{GS} =0V | | 85 | | ns |
| Reverse recovery charge | Q _{rr} | -di/dt=100A/μs T _{ch} =25°C | | 0.21 | | μC |

● Thermal characteristics

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|--------------------|-----------------------|--------------------|------|------|------|-------|
| Thermal resistance | R _{th(ch-c)} | channel to case | | | 1.0 | °C/W |
| | R _{th(ch-a)} | channel to ambient | | | 30.0 | °C/W |