

FUJI POWER MOSFET
Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

■ **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 | Ratings | Unit |
|---|-------------------------|----------------------|-------|
| Drain-source voltage | V _{DS} | 250 | V |
| | V _{DSX} *5 | 220 | V |
| Continuous drain current | I _D | ±25 | A |
| Pulsed drain current | I _{D(puls)} | ±100 | A |
| Gate-source voltage | V _{GS} | ±30 | V |
| Repetitive or non-repetitive | I _{AR} *2 | 25 | A |
| Maximum Avalanche Energy | E _{AS} *1 | 372 | mJ |
| Maximum Drain-Source dV/dt | dV _{DS} /dt *4 | 20 | kV/μs |
| Peak Diode Recovery dV/dt | dV/dt *3 | 5 | kV/μs |
| Max. power dissipation | P _D | T _a =25°C | 2.02 |
| | | T _c =25°C | 135 |
| Operating and storage temperature range | T _{ch} | +150 | °C |
| | T _{stg} | -55 to +150 | °C |

*1 L=0.67mH, V_{CC}=48V *2 T_{ch}≤150°C *3 I_F≤-I_D, -di/dt=50A/μs, V_{CC}≤BV_{DSS}, T_{ch}≤150°C
 *4 V_{DS}≤250V *5 V_{GS}=-30V *6 t=60sec f=60Hz

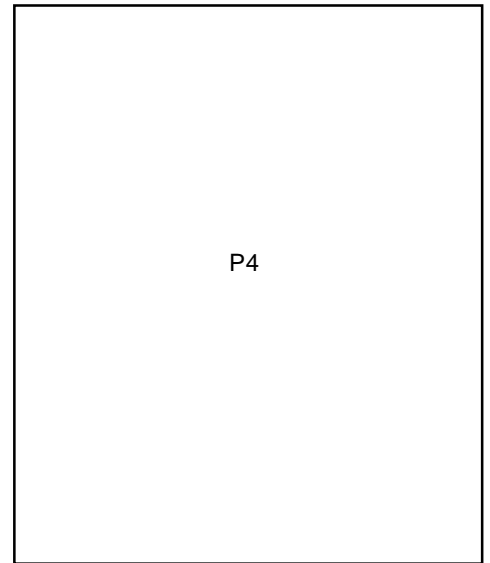
● **Electrical characteristics (Tc =25°C unless otherwise specified)**

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|----------------------------------|----------------------|---|------|------|------|-------|
| Drain-source breakdown voltage | V(BR) _{DSS} | I _D =250μA V _{GS} =0V | 250 | | | V |
| Gate threshold voltage | V _{GS(th)} | I _D =250μA V _{DS} =V _{GS} | 3.0 | | 5.0 | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =250V V _{GS} =0V | | | 25 | μA |
| | | V _{DS} =200V V _{GS} =0V | | | 250 | |
| 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 =12.5A V _{GS} =10V | | 75 | 100 | mΩ |
| Forward transconductance | g _{fs} | I _D =12.5A V _{DS} =25V | 8 | 16 | | S |
| Input capacitance | C _{iss} | V _{DS} =75V | | 2000 | 3000 | pF |
| Output capacitance | C _{oss} | V _{GS} =0V | | 220 | 330 | |
| Reverse transfer capacitance | C _{rss} | f=1MHz | | 15 | 30 | |
| Turn-on time t _{on} | td(on) | V _{CC} =72V I _D =12.5A | | 20 | 30 | ns |
| | t _r | V _{GS} =10V | | 30 | 45 | |
| Turn-off time t _{off} | td(off) | R _{GS} =10 Ω | | 60 | 90 | |
| | t _f | | | 20 | 30 | |
| Total Gate Charge | Q _G | V _{CC} =72V | | 44 | 66 | nC |
| Gate-Source Charge | Q _{GS} | I _D =12A | | 14 | 21 | |
| Gate-Drain Charge | Q _{GD} | V _{GS} =10V | | 16 | 24 | |
| Avalanche capability | I _{AV} | L=100μH T _{ch} =25°C | 25 | | | A |
| Diode forward on-voltage | V _{SD} | I _F =25A V _{GS} =0V T _{ch} =25°C | | 1.10 | 1.65 | V |
| Reverse recovery time | t _{rr} | I _F =25A V _{GS} =0V | | 0.45 | | μs |
| Reverse recovery charge | Q _{rr} | -di/dt=100A/μs T _{ch} =25°C | | 1.5 | | μC |

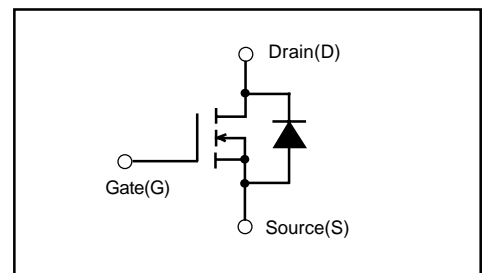
● **Thermal characteristics**

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|--------------------|-----------------------|--------------------|------|------|-------|-------|
| Thermal resistance | R _{th(ch-c)} | channel to case | | | 0.926 | °C/W |
| | R _{th(ch-a)} | channel to ambient | | | 62.0 | °C/W |

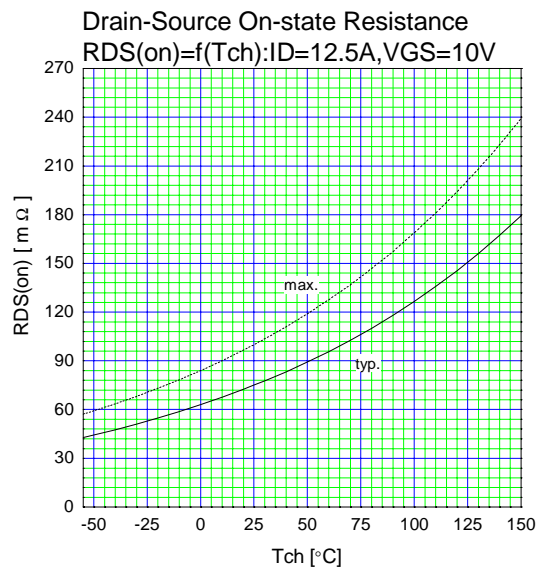
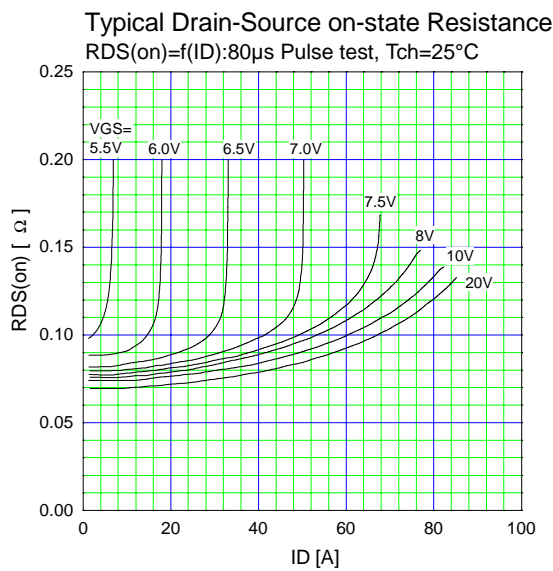
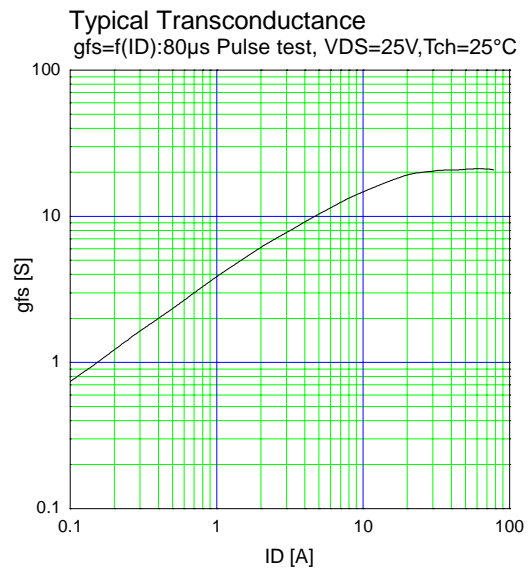
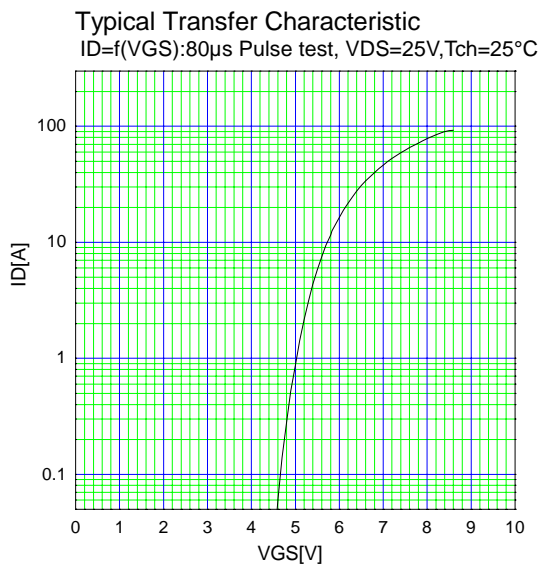
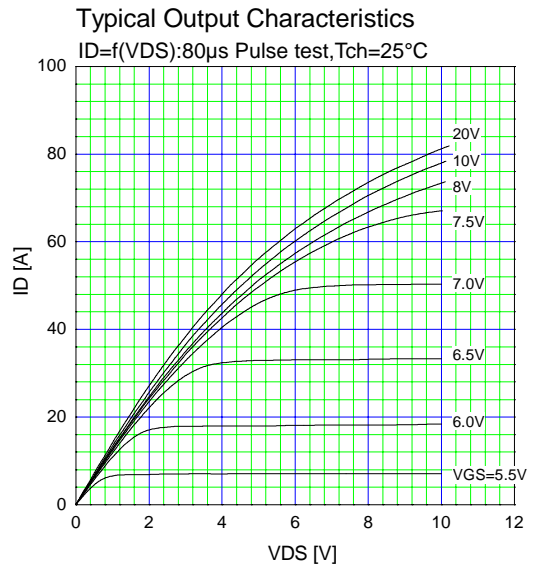
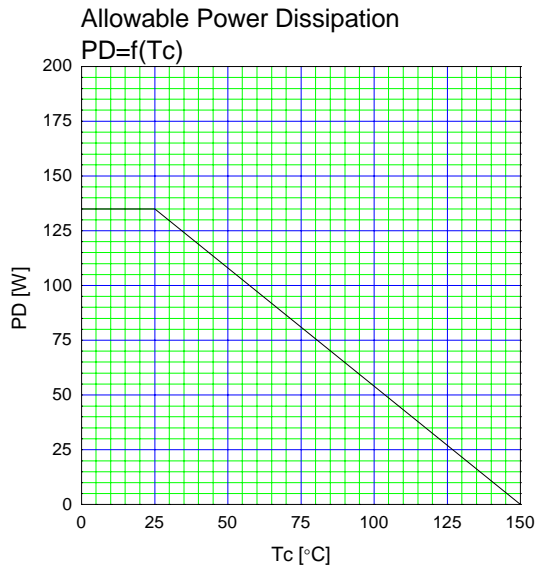
■ **Outline Drawings**

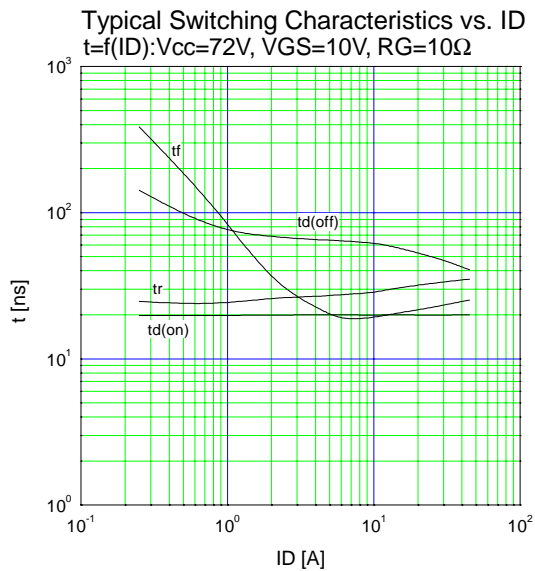
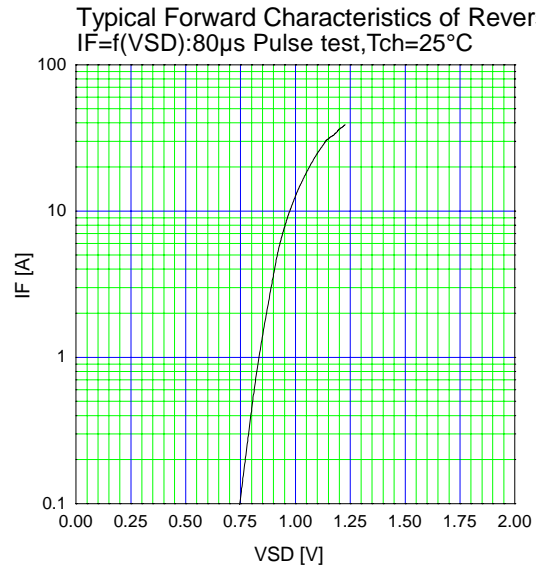
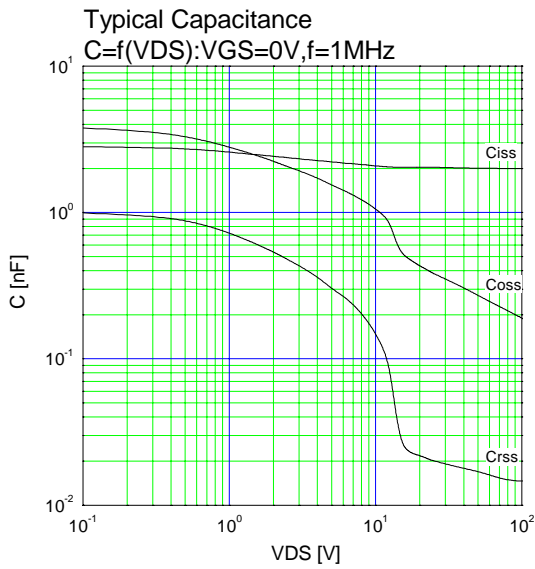
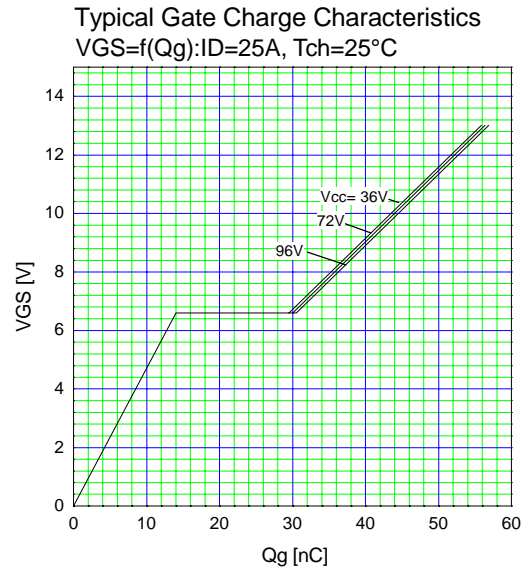
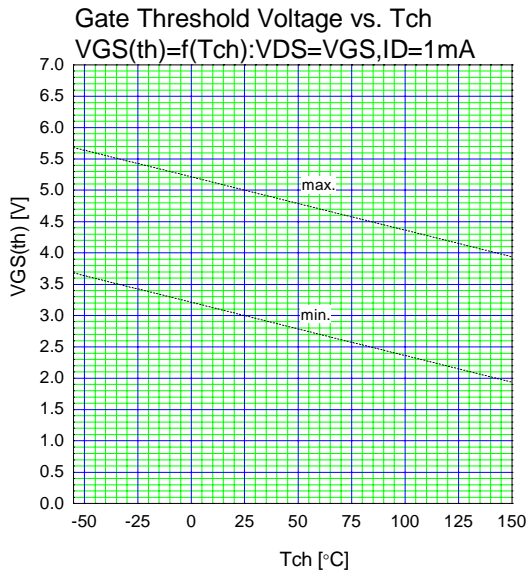


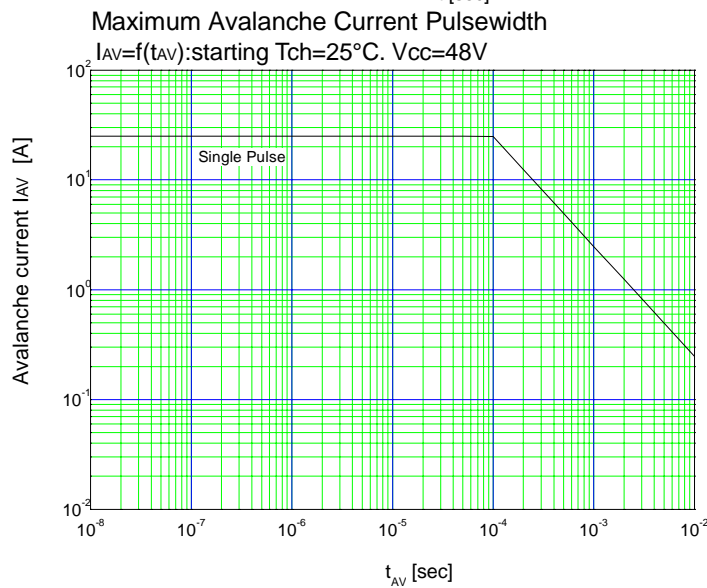
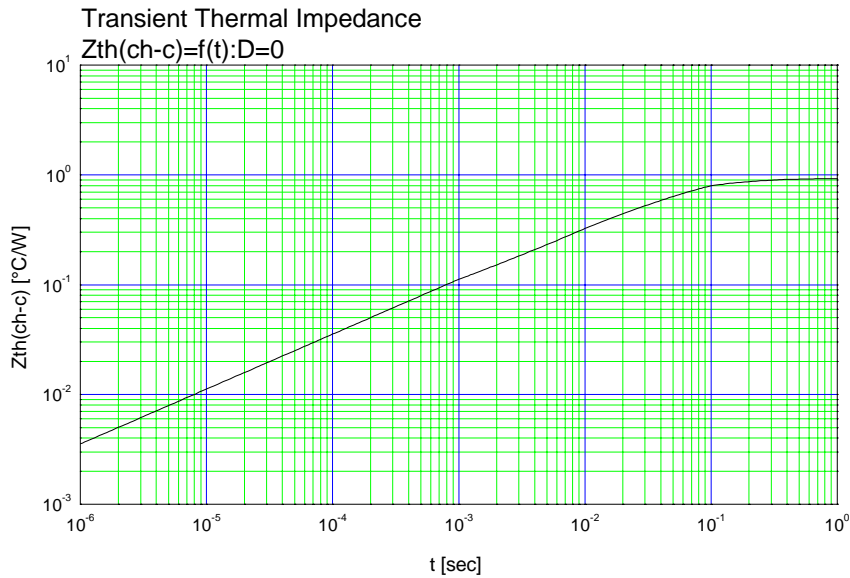
■ **Equivalent circuit schematic**



Characteristics

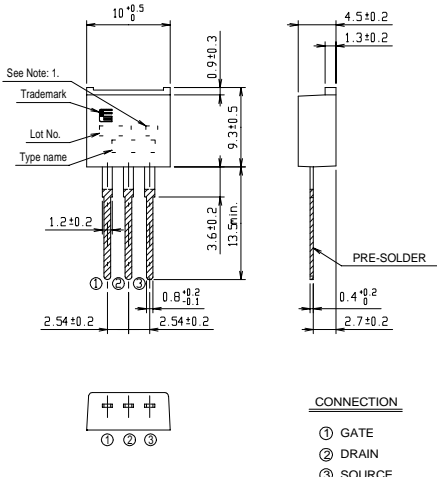




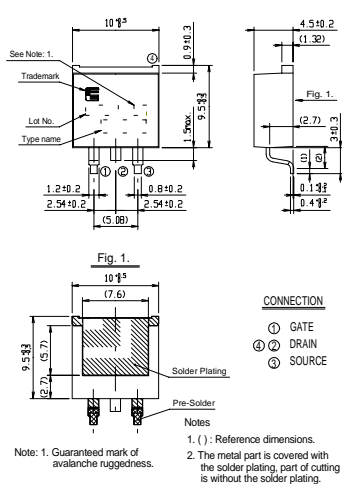


■ Outline Drawings (mm)

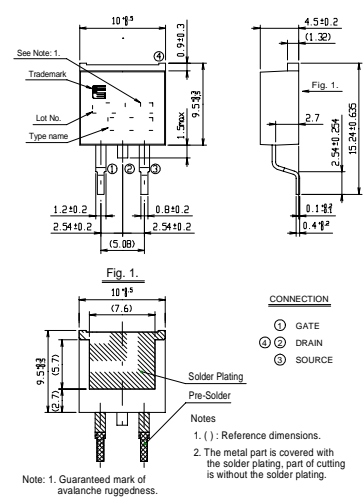
Type(L)



Type(S)



Type(SJ)



Note: 1. Guaranteed mark of avalanche ruggedness.