

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

(T_c=25°C unless otherwise specified)

| Item | Symbol | Ratings | Unit |
|---|-------------------------|----------------------|-------|
| Drain-source voltage | V _{DS} | 900 | V |
| | V _{DSX} *5 | 900 | V |
| Continuous drain current | I _D | ±9 | A |
| Pulsed drain current | I _{D(puls)} | ±36 | A |
| Gate-source voltage | V _{GS} | ±30 | V |
| Repetitive or non-repetitive | I _{AR} *2 | 9 | A |
| Maximum Avalanche Energy | E _{AS} *1 | 287.7 | mJ |
| Maximum Drain-Source dV/dt | dV _{DS} /dt *4 | 40 | 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 | 270 |
| Operating and storage temperature range | T _{ch} | +150 | °C |
| | T _{stg} | -55 to +150 | °C |

*1 L=6.51mH, V_{CC}=90V, T_{ch}=25°C See to Avalanche Energy Graph *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} ≤ 900V *5 V_{GS} = -30V

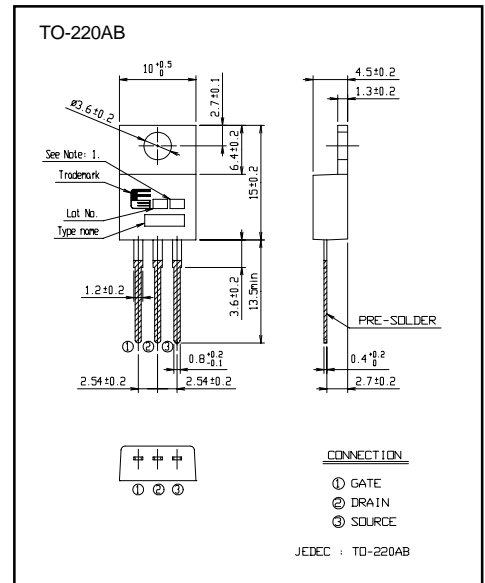
Electrical characteristics (T_c =25°C unless otherwise specified)

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|----------------------------------|----------------------|--|------|------|------|-------|
| Drain-source breakdown voltage | V _{(BR)DSS} | I _D =250μA V _{GS} =0V | 900 | | | 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} =900V V _{GS} =0V | | | 25 | μA |
| | | V _{DS} =720V V _{GS} =0V | | | 250 | |
| Gate-source leakage current | I _{GSS} | V _{GS} =±30V V _{DS} =0V | | | 100 | nA |
| Drain-source on-state resistance | R _{DS(on)} | I _D =4.5A V _{GS} =10V | | 1.22 | 1.58 | Ω |
| Forward transconductance | g _{fs} | I _D =4.5A V _{DS} =25V | 5 | 10 | | S |
| Input capacitance | C _{iss} | V _{DS} =25V | | 1100 | 1650 | pF |
| Output capacitance | C _{oss} | V _{GS} =0V | | 140 | 210 | |
| Reverse transfer capacitance | C _{rss} | f=1MHz | | 8 | 12 | |
| Turn-on time t _{on} | td(on) | V _{CC} =600V I _D =4.5A | | 25 | 38 | ns |
| | t _r | V _{GS} =10V | | 12 | 18 | |
| Turn-off time t _{off} | td(off) | R _{GS} =10 Ω | | 50 | 75 | |
| | t _f | | | 12 | 18 | |
| Total Gate Charge | Q _G | V _{CC} =450V | | 31 | 46.5 | nC |
| Gate-Source Charge | Q _{GS} | I _D =9A | | 4.5 | 8 | |
| Gate-Drain Charge | Q _{GD} | V _{GS} =10V | | 11 | 16.5 | |
| Avalanche capability | I _{AV} | L=6.51mH T _{ch} =25°C | 9 | | | A |
| Diode forward on-voltage | V _{SD} | I _F =9A V _{GS} =0V T _{ch} =25°C | | 0.90 | 1.50 | V |
| Reverse recovery time | t _{rr} | I _F =9A V _{GS} =0V | | 3.2 | | μs |
| Reverse recovery charge | Q _{rr} | -di/dt=100A/μs T _{ch} =25°C | | 15.5 | | μC |

Thermal characteristics

| Item | Symbol | Test Conditions | Min. | Typ. | Max. | Units |
|--------------------|-----------------------|--------------------|------|------|-------|-------|
| Thermal resistance | R _{th(ch-c)} | channel to case | | | 0.463 | °C/W |
| | R _{th(ch-a)} | channel to ambient | | | 62.0 | °C/W |

Outline Drawings [mm]



Equivalent circuit schematic

