

P21F28HP2

Power MOSFETs

280V, 21A, N-channel

Feature

- N-channel
- High Voltage
- High Speed Switching
- Low Ron
- Low Capacitance
- High Avalanche Durability, High di/dt Durability
- Pb free terminal
- RoHS:Yes

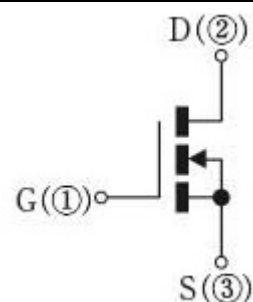
OUTLINE

Package (House Name): FTO-220AG

Package (JEITA Code): SC-91



Equivalent circuit



Absolute Maximum Ratings (unless otherwise specified : Tc=25°C)

| Item | Symbol | Conditions | Ratings | Unit |
|-----------------------------------|------------------|-------------------------------|------------|------|
| Storage temperature | Tstg | | -55 to 150 | °C |
| Channel temperature | Tch | | 150 | °C |
| Drain-source voltage | V _{DSS} | | 280 | V |
| Gate-source voltage | V _{GSS} | | ±30 | V |
| Continuous drain current(DC) | I _D | | 21 | A |
| Continuous drain current(Peak) | I _{DP} | Pulse width 10μs, duty=1/100 | 84 | A |
| Continuous source current(DC) | I _S | | 21 | A |
| Total power dissipation | P _T | | 85 | W |
| Repetitive avalanche current | I _{AR} | Starting Tch=25°C Tch≤150°C | 21 | A |
| Single avalanche energy | E _{AS} | Starting Tch=25°C Tch≤150°C | 55 | mJ |
| Repetitive avalanche energy | E _{AR} | Starting Tch=25°C Tch≤150°C | 5.5 | mJ |
| Drain-source diode di/dt strength | di/dt | I _S =21A, Tc=25°C | 350 | A/μs |
| Dielectric strenght | V _{dis} | Terminals to case, AC1min | 2 | kV |
| Mounting torque | TOR | (Recommended torque : 0.3N·m) | 0.5 | N·m |

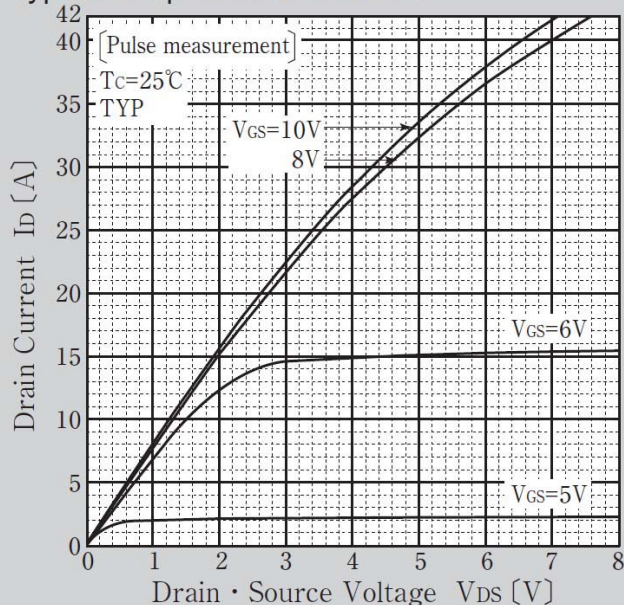
※ :See the original Specifications

Electrical Characteristics (unless otherwise specified : Tc=25°C)

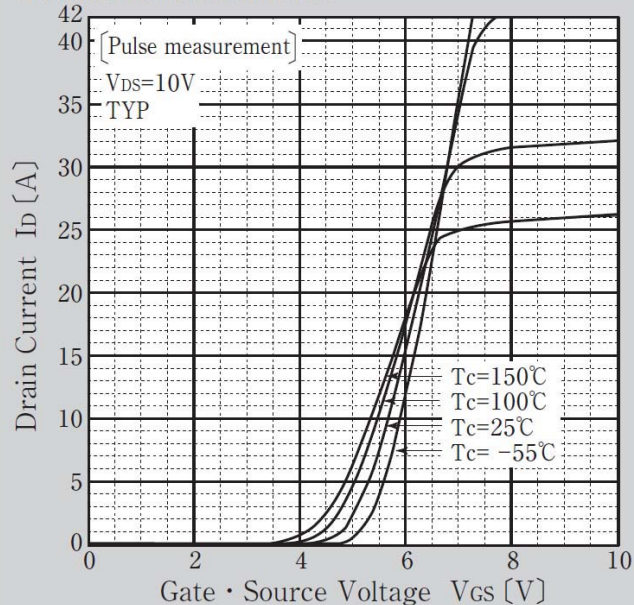
| Item | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---|---------|------|------|------|
| | | | MIN | TYP | MAX | |
| Drain-Source breakdown voltage | $V_{(BR)DSS}$ | ID=1mA, VGS=0V | 280 | | | V |
| Zero gate voltage drain current | I_{DSS} | VDS=280V, VGS=0V | | | 100 | μA |
| Gate-source leakage current | I_{GSS} | VGS=±30V, VDS=0V | | | ±0.1 | μA |
| Forward transconductance | g_{fs} | ID=10.5A, VDS=10V | 7.5 | 15 | | S |
| Static drain-source on-state resistance | $R_{DS(ON)}$ | ID=10.5A, VGS=10V | | 0.13 | 0.18 | Ω |
| Gate threshold voltage | V_{th} | ID=1mA, VDS=10V | 3 | 3.75 | 4.5 | V |
| Source-drain diode forward voltage | V_{SD} | IS=10.5A, VGS=0V | | | 1.5 | V |
| Thermal resistance | $R_{th(j-c)}$ | Junction to case | | | 1.47 | °C/W |
| Total gate charge | Q_g | VDD=200V, VGS=10V, ID=21A | | 20.5 | | nC |
| Input capacitance | C_{iss} | VDS=50V, VGS=0V, f=1MHz | | 1000 | | pF |
| Reverse transfer capacitance | C_{rss} | VDS=50V, VGS=0V, f=1MHz | | 10 | | pF |
| Output capacitance | C_{oss} | VDS=50V, VGS=0V, f=1MHz | | 165 | | pF |
| Turn-on delay time | $t_{d(on)}$ | ID=10.5A, RL=14.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V | | 22 | | ns |
| Rise time | t_r | ID=10.5A, RL=14.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V | | 45 | | ns |
| Turn-off delay time | $t_{d(off)}$ | ID=10.5A, RL=14.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V | | 70 | | ns |
| Fall time | t_f | ID=10.5A, RL=14.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V | | 34 | | ns |

※ : See the original Specifications

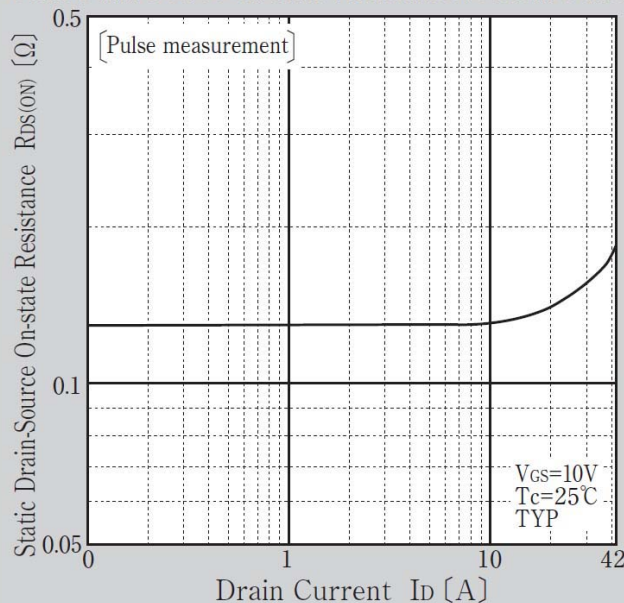
Typical Output Characteristics



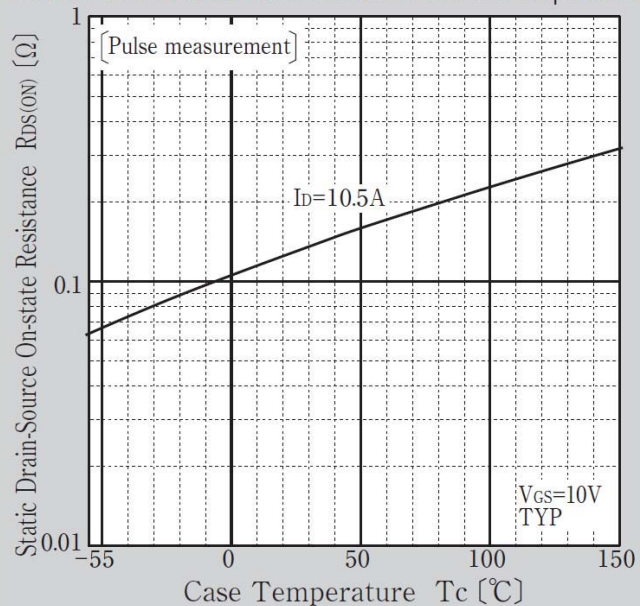
Transfer Characteristics



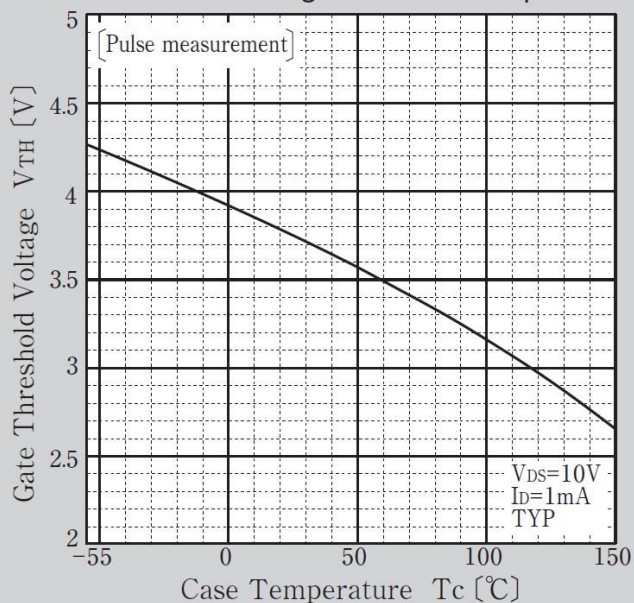
Static Drain-Source On-state Resistance vs Drain Current



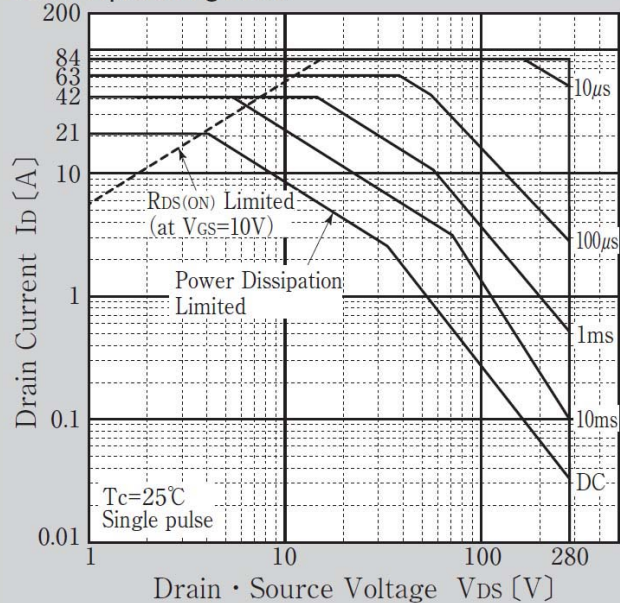
Static Drain-Source On-state Resistance vs Case Temperature



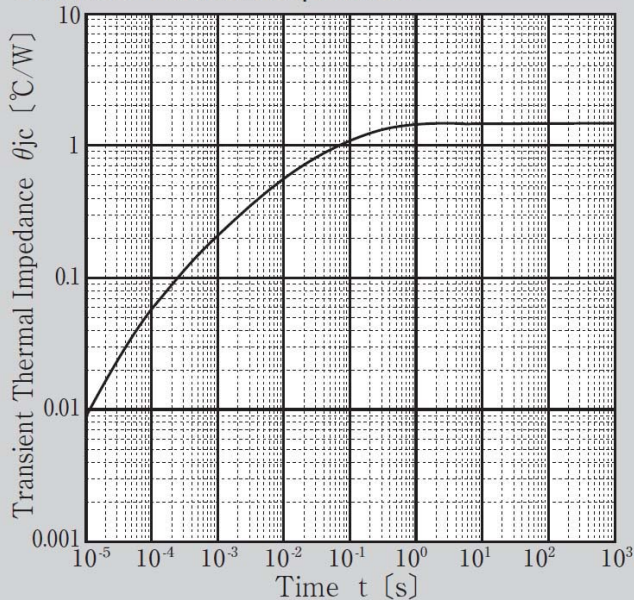
Gate Threshold Voltage vs Case Temperature



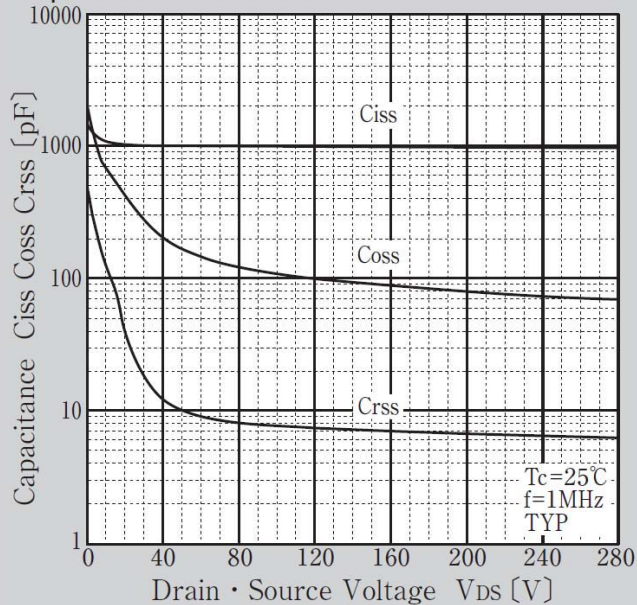
Safe Operating Area

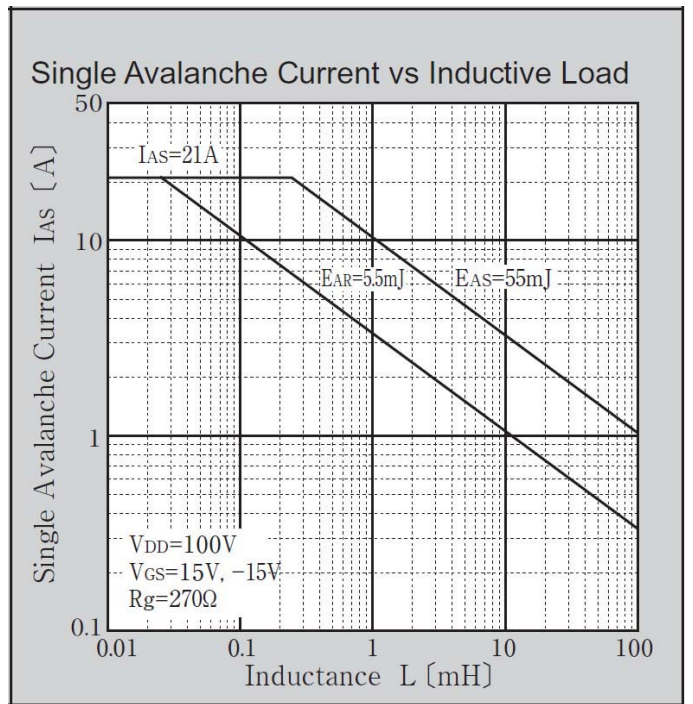
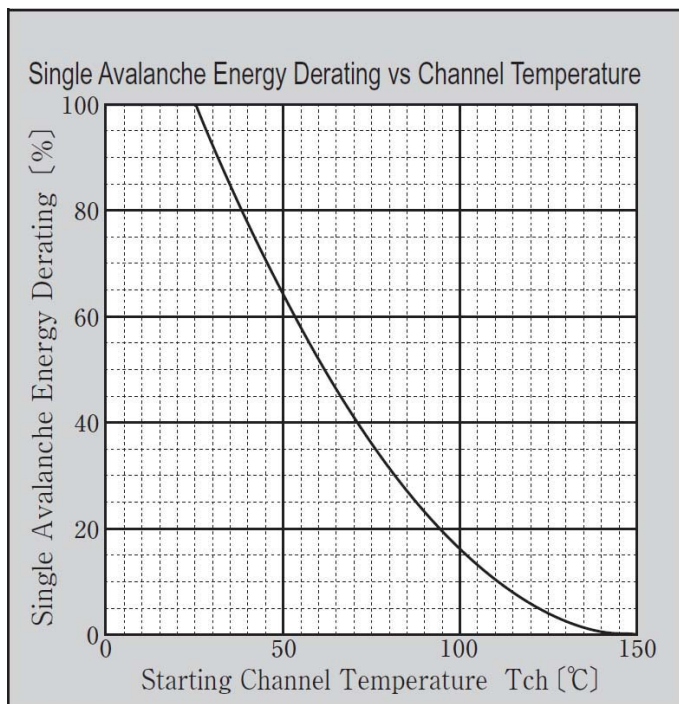
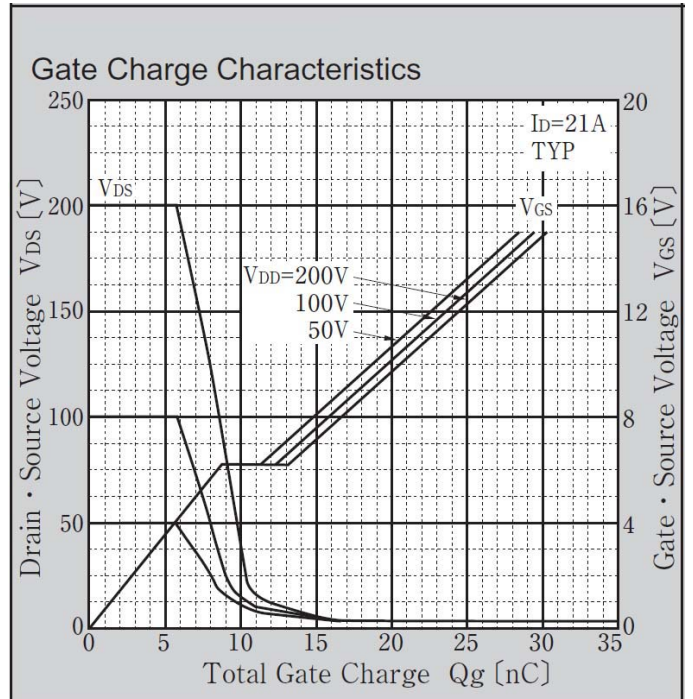
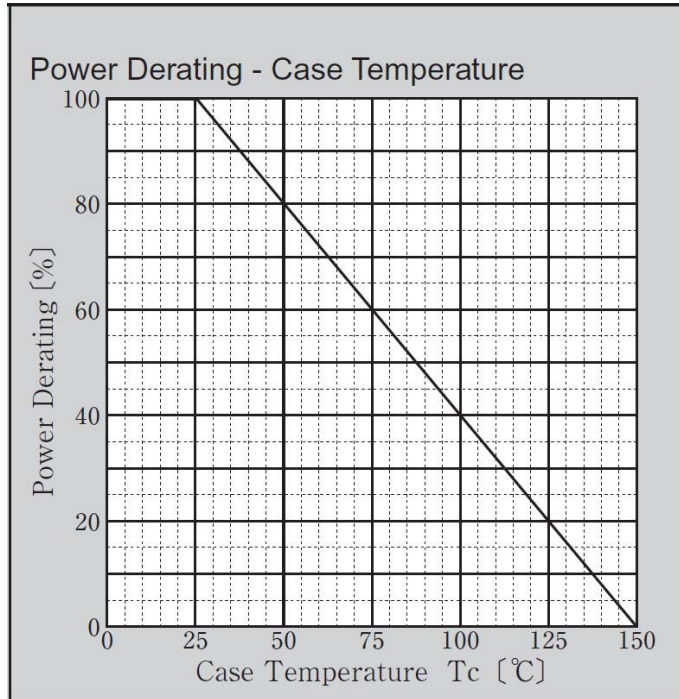


Transient Thermal Impedance



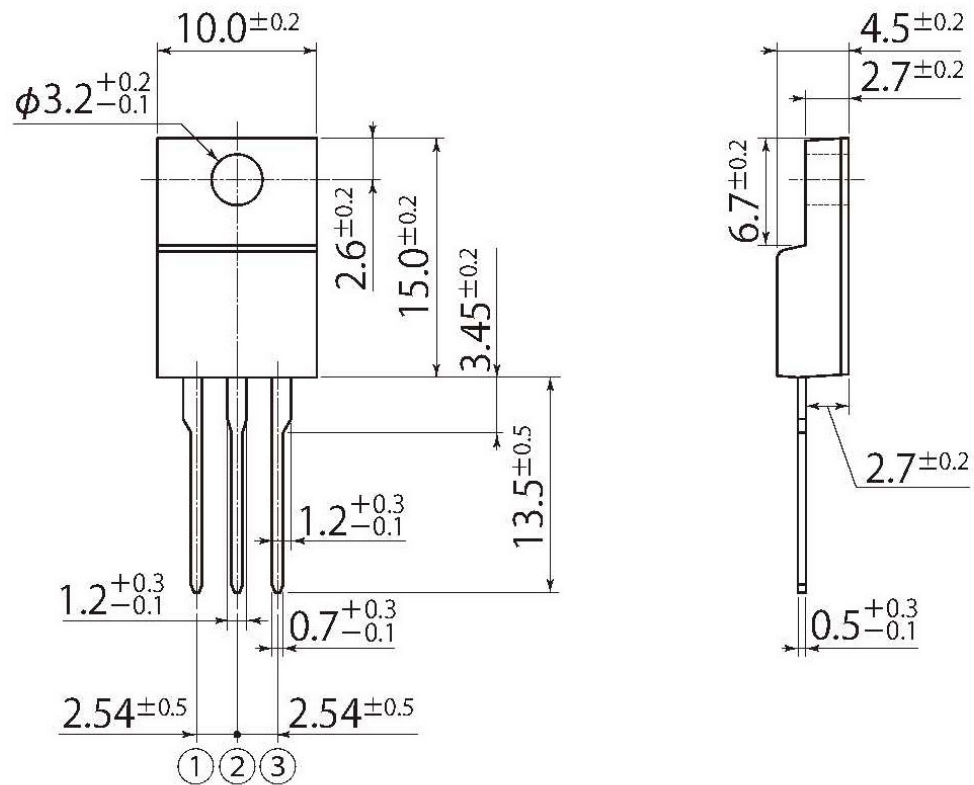
Capacitance Characteristics





J8

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|------------|-----------------|
| JEDEC Code | — |
| JEITA Code | SC-91 |
| House Name | FTO-220AG(3pin) |



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