

P66F7R5SN

Power MOSFETs  
75V, 66A, N-channel

Feature

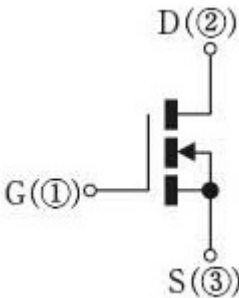
- N-channel
- Isolated Package
- Low Ron
- 10V Gate Drive
- Low Capacitance
- Pb free terminal
- RoHS:Yes

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 tempertature           | Tch              |                               | 150        | °C   |
| Drain-source voltage           | V <sub>DSS</sub> |                               | 75         | V    |
| Gate-source voltage            | V <sub>GSS</sub> |                               | ±20        | V    |
| Continuous drain current(DC)   | I <sub>D</sub>   |                               | 66         | A    |
| Continuous drain current(Peak) | I <sub>DP</sub>  | Pulse width 10μs, duty=1/100  | 264        | A    |
| Total power dissipation        | P <sub>T</sub>   |                               | 51         | W    |
| Single avalanche current       | I <sub>AS</sub>  | Starting Tch=25°C Tch≤150°C   | 51         | A    |
| Single avalanche energy        | E <sub>AS</sub>  | Starting Tch=25°C Tch≤150°C   | 130        | mJ   |
| Dielectric strenght            | Vdis             | Terminals to case, AC1min     | 2          | kV   |
| Mounting torque                | TOR              | (Recommended torque : 0.3N・m) | 0.5        | N・m  |

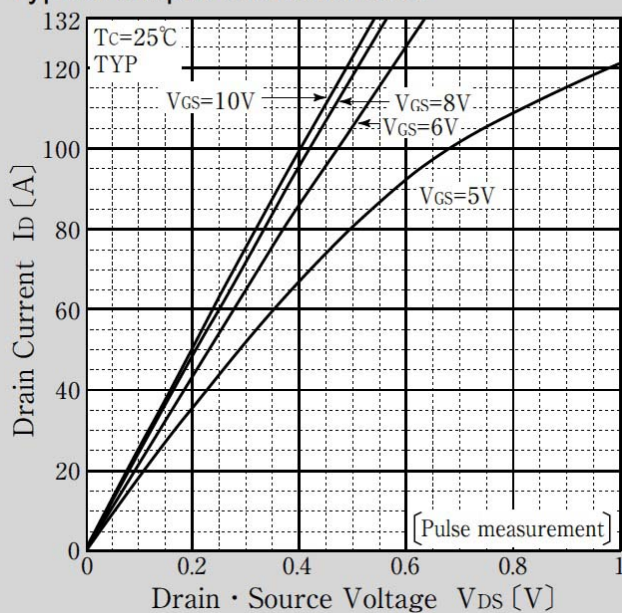
※ :See the original Specifications

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

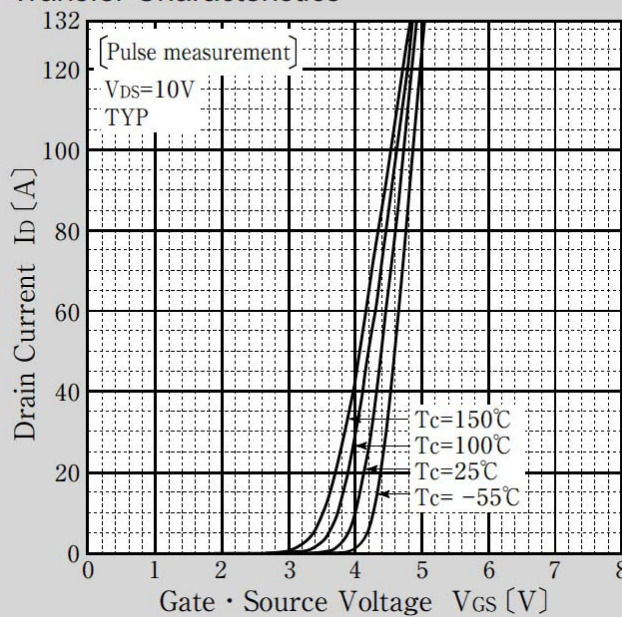
| Item                                    | Symbol        | Conditions                                                | Ratings |       |       | Unit |
|-----------------------------------------|---------------|-----------------------------------------------------------|---------|-------|-------|------|
|                                         |               |                                                           | MIN     | TYP   | MAX   |      |
| Drain-Source breakdown voltage          | $V_{(BR)DSS}$ | ID=1mA, VGS=0V                                            | 75      |       |       | V    |
| Zero gate voltage drain current         | $I_{DSS}$     | VDS=75V, VGS=0V                                           |         |       | 1     | μA   |
| Gate-source leakage current             | $I_{GSS}$     | VGS=±20V, VDS=0V                                          |         |       | ±0.1  | μA   |
| Forward transconductance                | $g_{fs}$      | ID=33A, VDS=10V                                           | 21      |       |       | S    |
| Static drain-source on-state resistance | $R_{DS(ON)}$  | ID=33A, VGS=10V                                           |         | 0.004 | 0.005 | Ω    |
| Gate threshold voltage                  | $V_{th}$      | ID=1mA, VDS=10V                                           | 2       | 3     | 4     | V    |
| Source-drain diode forward voltage      | $V_{SD}$      | IS=66A, VGS=0V                                            |         |       | 1.5   | V    |
| Thermal resistance                      | $R_{th(j-c)}$ | Junction to case                                          |         |       | 2.45  | °C/W |
| Total gate charge                       | $Q_g$         | VDD=60V, VGS=10V, ID=66A                                  |         | 115   |       | nC   |
| Gate to source charge                   | $Q_{gs}$      | VDD=60V, VGS=10V, ID=66A                                  |         | 29    |       | nC   |
| Gate to drain charge                    | $Q_{gd}$      | VDD=60V, VGS=10V, ID=66A                                  |         | 40    |       | nC   |
| Input capacitance                       | $C_{iss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 6070  |       | pF   |
| Reverse transfer capacitance            | $C_{rss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 310   |       | pF   |
| Output capacitance                      | $C_{oss}$     | VDS=25V, VGS=0V, f=1MHz                                   |         | 645   |       | pF   |
| Turn-on delay time                      | $t_{d(on)}$   | ID=33A, RL=1.14Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 12    |       | ns   |
| Rise time                               | $t_r$         | ID=33A, RL=1.14Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 36    |       | ns   |
| Turn-off delay time                     | $t_{d(off)}$  | ID=33A, RL=1.14Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 62    |       | ns   |
| Fall time                               | $t_f$         | ID=33A, RL=1.14Ω, VDD=37.5V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V |         | 50    |       | ns   |
| Diode reverse recovery time             | $t_{rr}$      | IF=66A, VGS=0V, di/dt=100A/μs                             |         | 52    |       | ns   |
| Diode reverse recovery charge           | $Q_{rr}$      | IF=66A, VGS=0V, di/dt=100A/μs                             |         | 95    |       | nC   |

※ :See the original Specifications

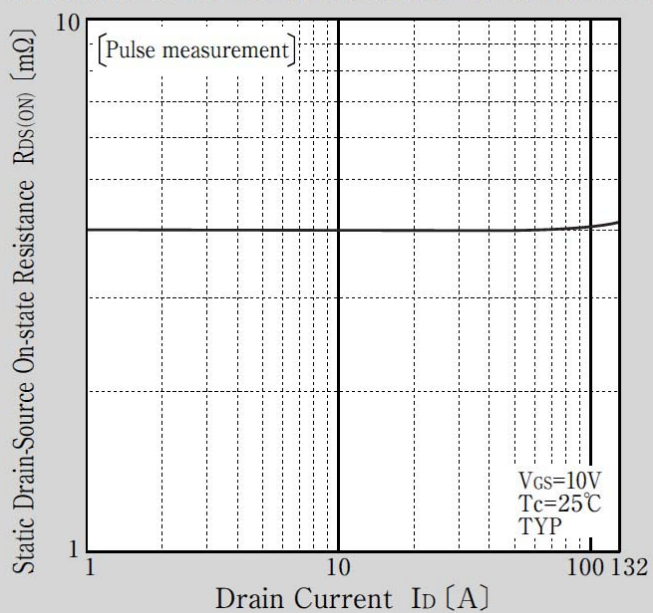
## Typical Output Characteristics



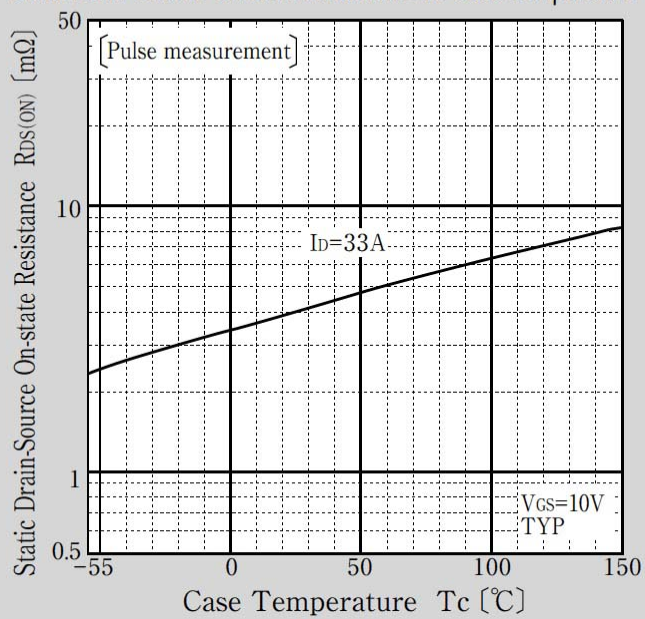
## Transfer Characteristics



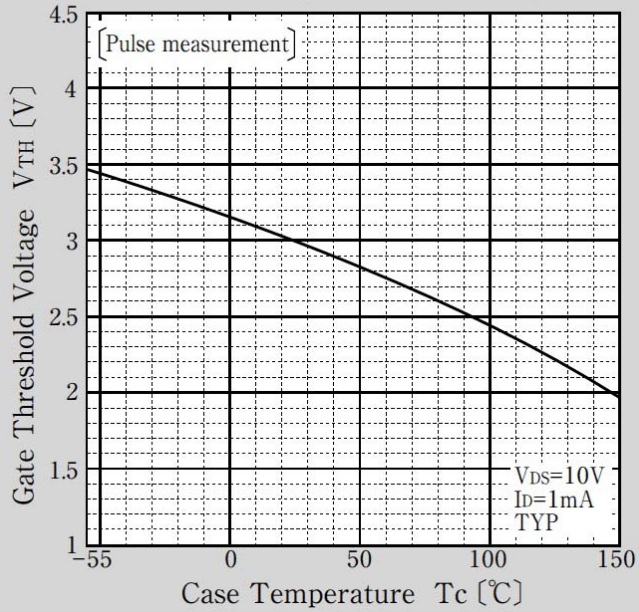
## Static Drain-Source On-state Resistance vs Drain Current



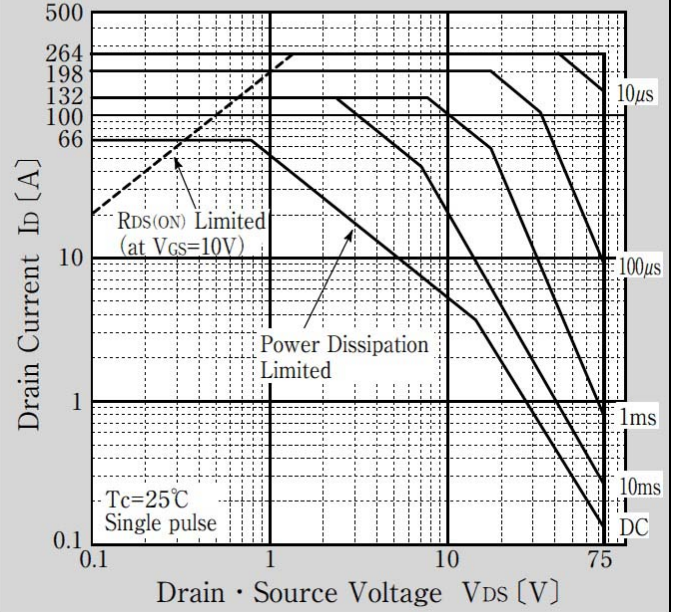
## Static Drain-Source On-state Resistance vs Case Temperature



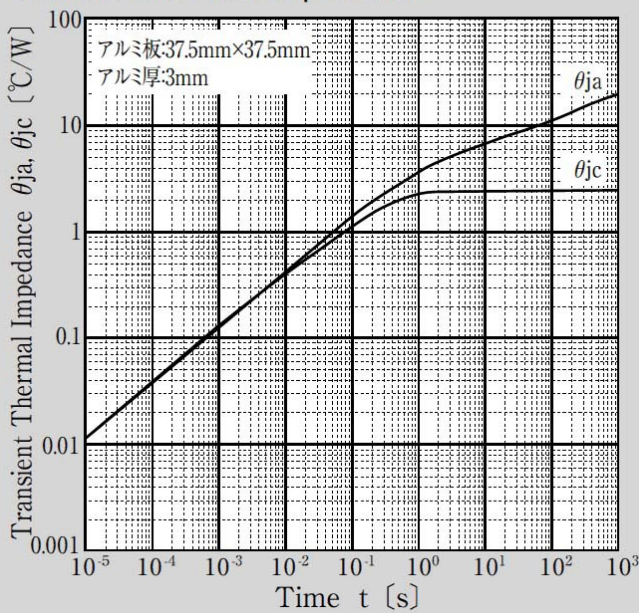
Gate Threshold Voltage vs Case Temperature



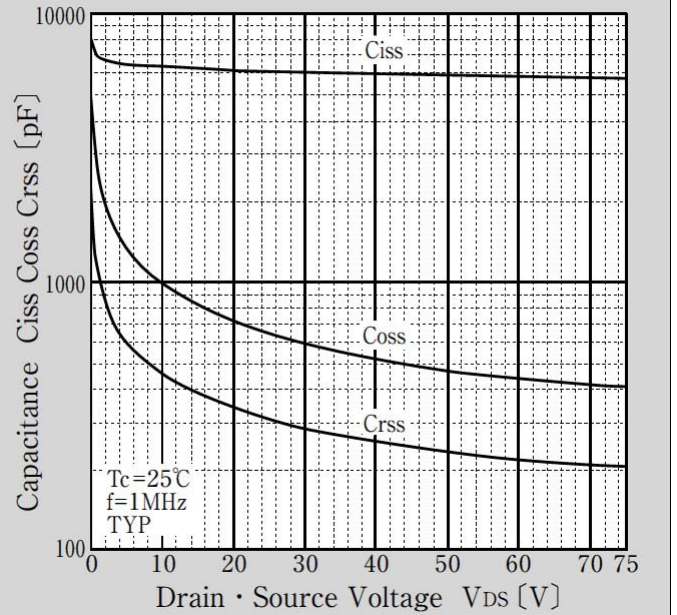
Safe Operating Area



Transient Thermal Impedance

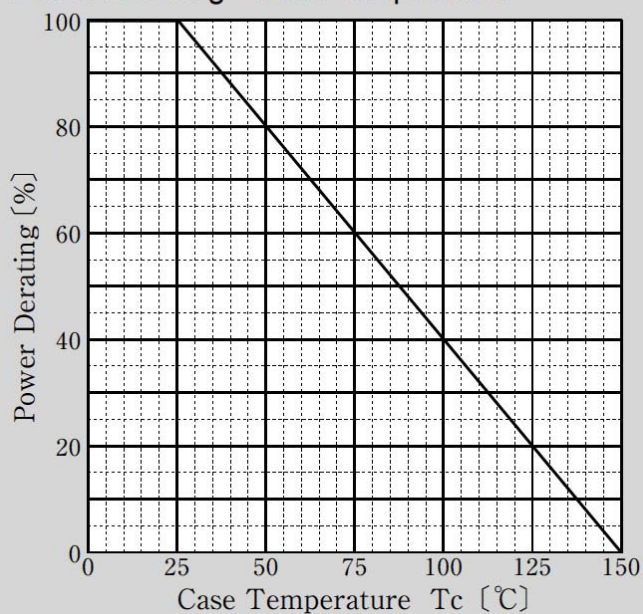


Capacitance Characteristics

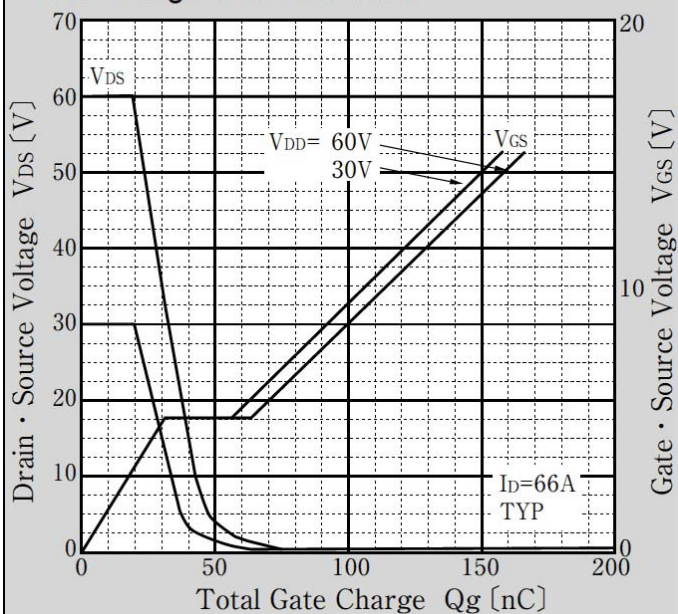




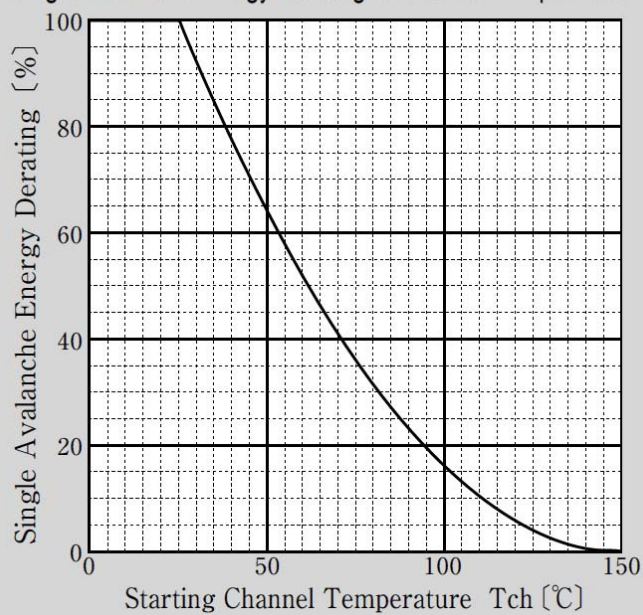
Power Derating - Case Temperature



Gate Charge Characteristics



Single Avalanche Energy Derating vs Channel Temperature

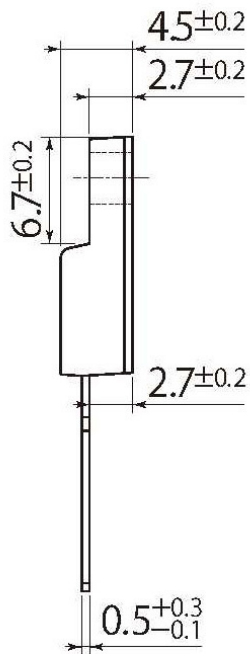
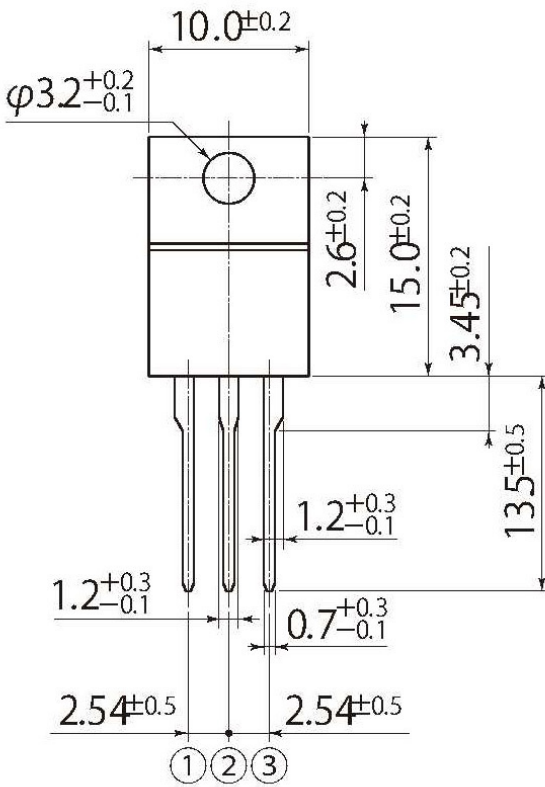


unit:mm

scale: 2/1

J8

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



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