MOSFET

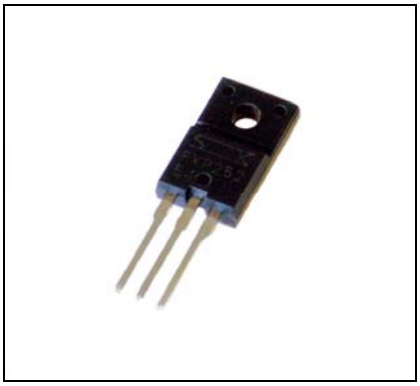
# FKP252

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## ■Features

- Low on-resistance
- Low input capacitance
- Avalanche energy capability guaranteed

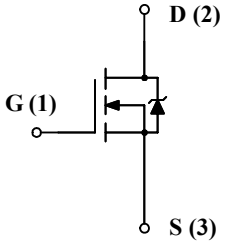
## ■Package---TO220F



## ■Applications

- PDP driving
- High speed switching

## ■Equivalent circuit




## Absolute maximum ratings

(Ta=25°C)

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Drain to Source Voltage | VDSS | 250 | V |
| Gate to Source Voltage | VGSS | ±30 | V |
| Continuous Drain Current | ID | ±25A | A |
| Pulsed Drain Current | ID(pulse) *1 | ±100A | A |
| Maximum Power Dissipation | PD | 40 (Tc=25°C) | W |
| Single Pulse Avalanche Energy | EAS *2 | 200 | mJ |
| Avalanche Current | IAS | 25 | A |
| Channel Temperature | Tch | 150 | °C |
| Storage Temperature | Tstg | -55 to 150 | °C |

*1 PW≤100μsec, duty cycle≤1%

*2 VDD=20V, L=590μH, ILp=25A, unclamped, RG=50Ω, See Fig.1

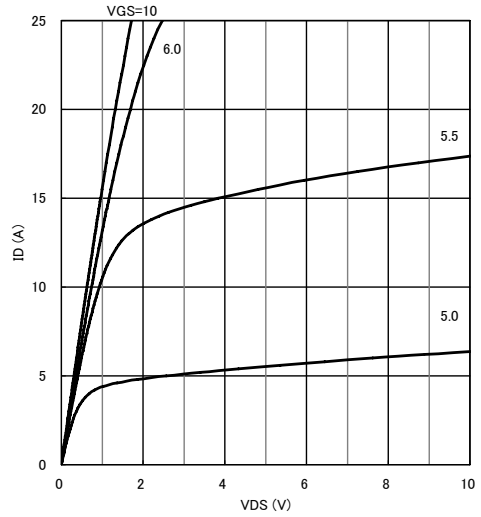
**Electrical characteristics**

(Ta=25°C)

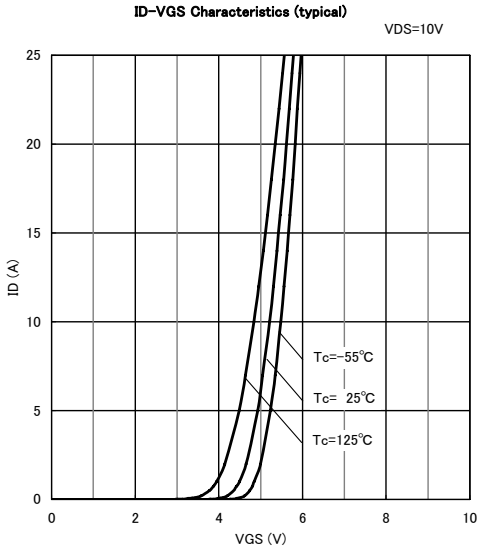
| Characteristic | Symbol | Test Conditions | Limits | | | Unit |
|---|---|---|---|---|---|---|
| | | | MIN. | TYP. | MAX. | |
| Drain to Source breakdown Voltage | V(BR)DSS | ID=100μA,VGS=0V | 250 | | | V |
| Gate to Source Leakage Current | IGSS | VGS=±30V | | | ±100 | nA |
| Drain to Source Leakage Current | IDSS | VDS=250V, VGS=0V | | | 100 | μA |
| Gate Threshold Voltage | VTH | VDS=10V, ID=1mA | 3.0 | | 4.5 | V |
| Forward Transconductance | Re(Yfs) | VDS=10V, ID=12A | 13 | 21 | | S |
| Static Drain to Source On-Resistance | RDS(ON) | ID=12A, VGS=10V | | 68 | 75 | mΩ |
| Input Capacitance | Ciss | VDS=25V | | 2000 | | pF |
| Output Capacitance | Coss | VGS=0V | | 330 | | |
| Reverse Transfer Capacitance | Crss | f=1MHz | | 70 | | |
| Turn-On Delay Time | td(on) | ID=12A, VDD≈120V | | 30 | | ns |
| Rise Time | tr | RL=10Ω, VGS=10V | | 50 | | |
| Turn-Off Delay Time | td(off) | Rg=5Ω | | 100 | | |
| Fall Time | tf | See Fig.2 | | 40 | | |
| Source-Drain Diode Forward Voltage | VSD | ISD=25A,VGS=0V | | 0.9 | 1.5 | V |
| Gate Threshold Voltage Temp. Coefficient | ΔVTH / ΔTch | VDS=10V, ID=1mA | | -8 | | mV/°C |

## Characteristic Curves (Tc=25°C)

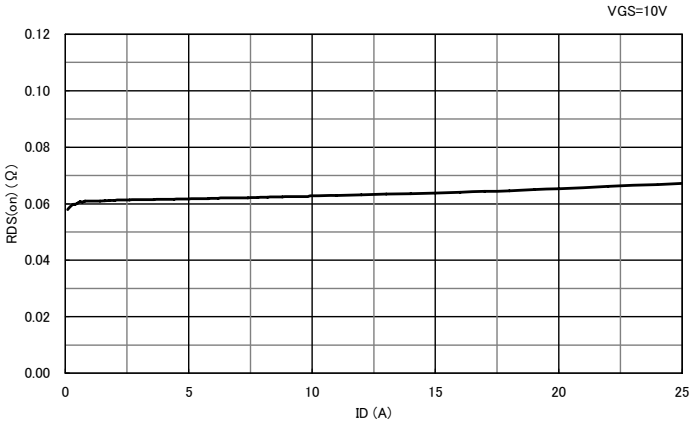
ID-VDS Characteristics (typical)



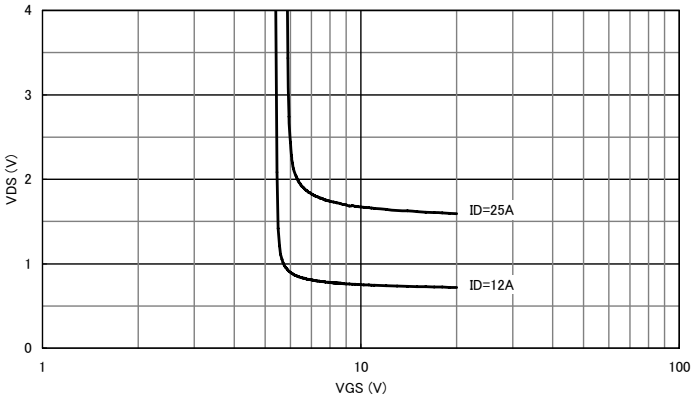

ID-VGS Characteristics (typical)



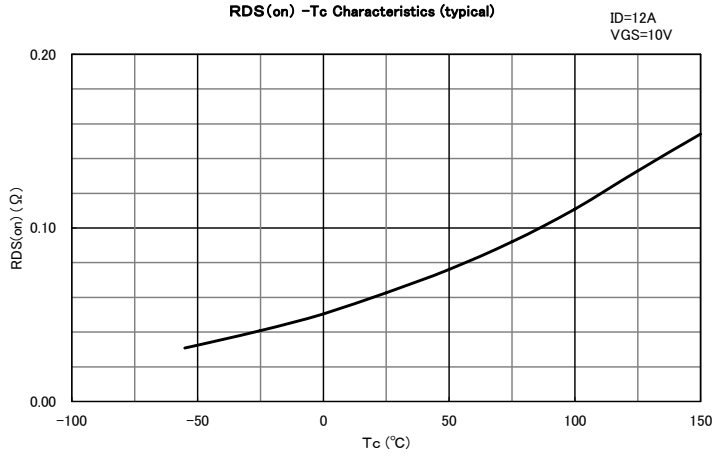

RDS(on)-ID Characteristics (typical)




VDS-VGS Characteristics (typical)

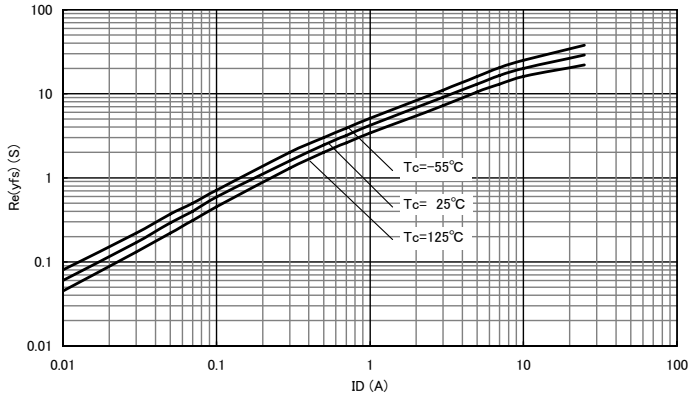



RDS(on) -Tc Characteristics (typical)

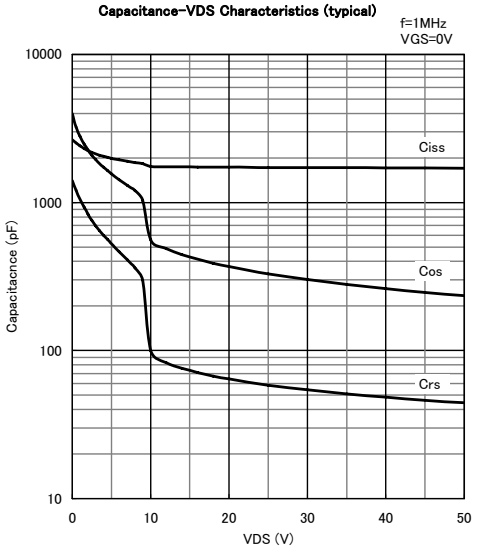


## Characteristic Curves (Tc=25°C)

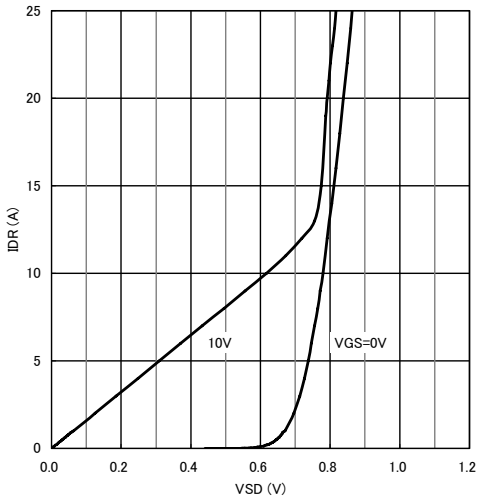
**Re(yfs)-ID Characteristics (typical)**



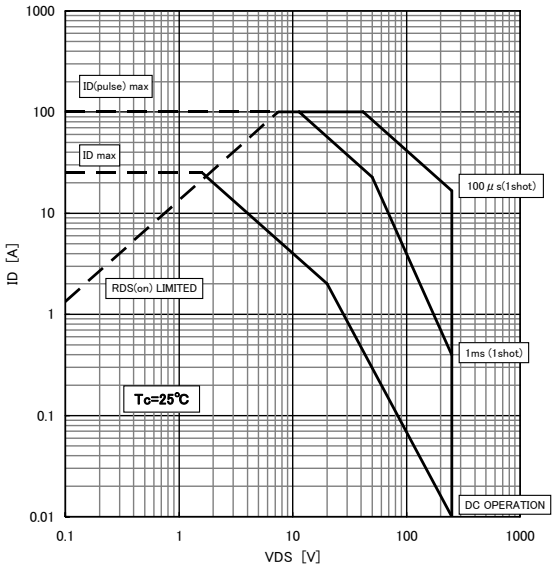

**Capacitance-VDS Characteristics (typical)**




**IDR-VSD Characteristics (typical)**




**SAFE OPERATING AREA**




**PD-Ta Characteristics**

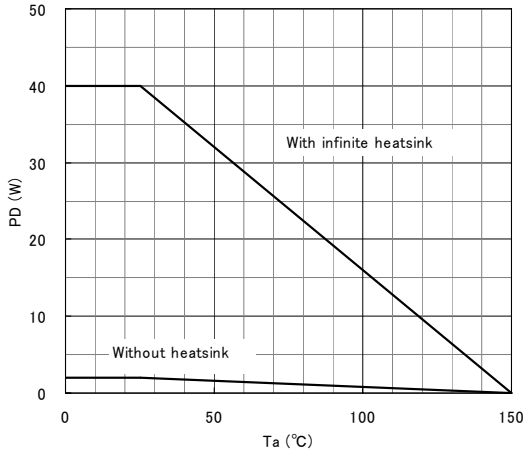
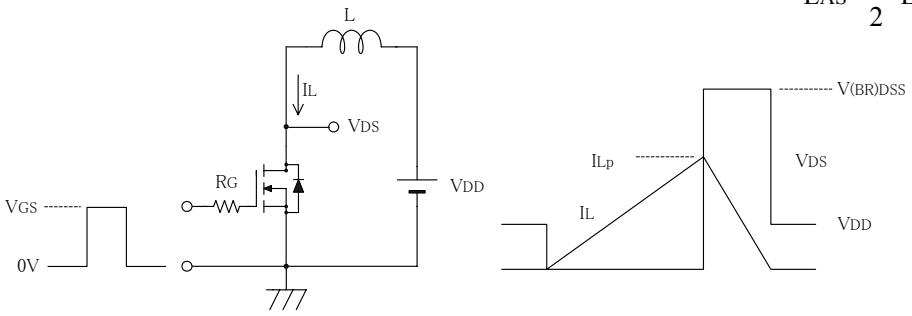


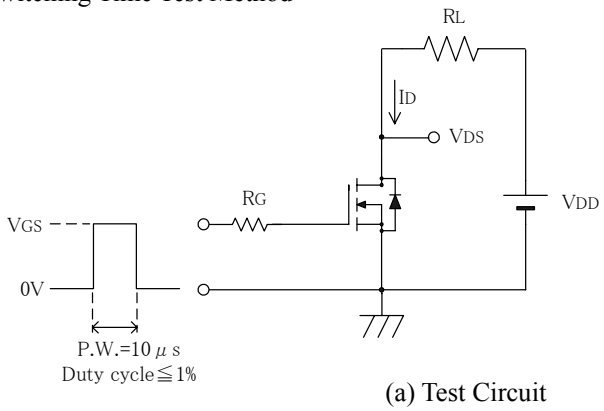
Fig.1 Unclamped Inductive Test Method (for Avalanche energy capability)

$$E_{AS}=\frac{1}{2}\bullet L\bullet I_{LP}^{2}\bullet\frac{V_{(BR)DSS}}{V_{(BR)DSS}-V_{DD}}$$



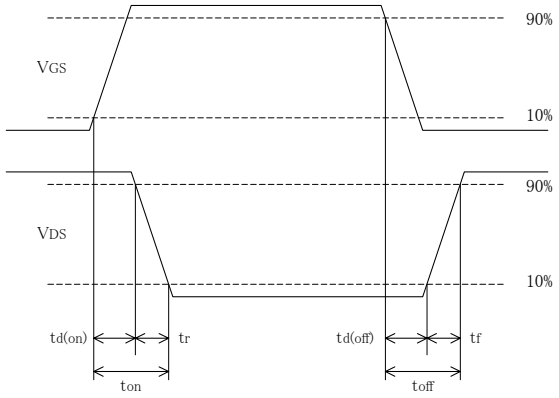

(a) Test Circuit (b) Waveforms

Fig.2 Switching Time Test Method




VDD≈120V
ID=12A
RL=10Ω
VGS=10V
RG=5Ω

(a) Test Circuit



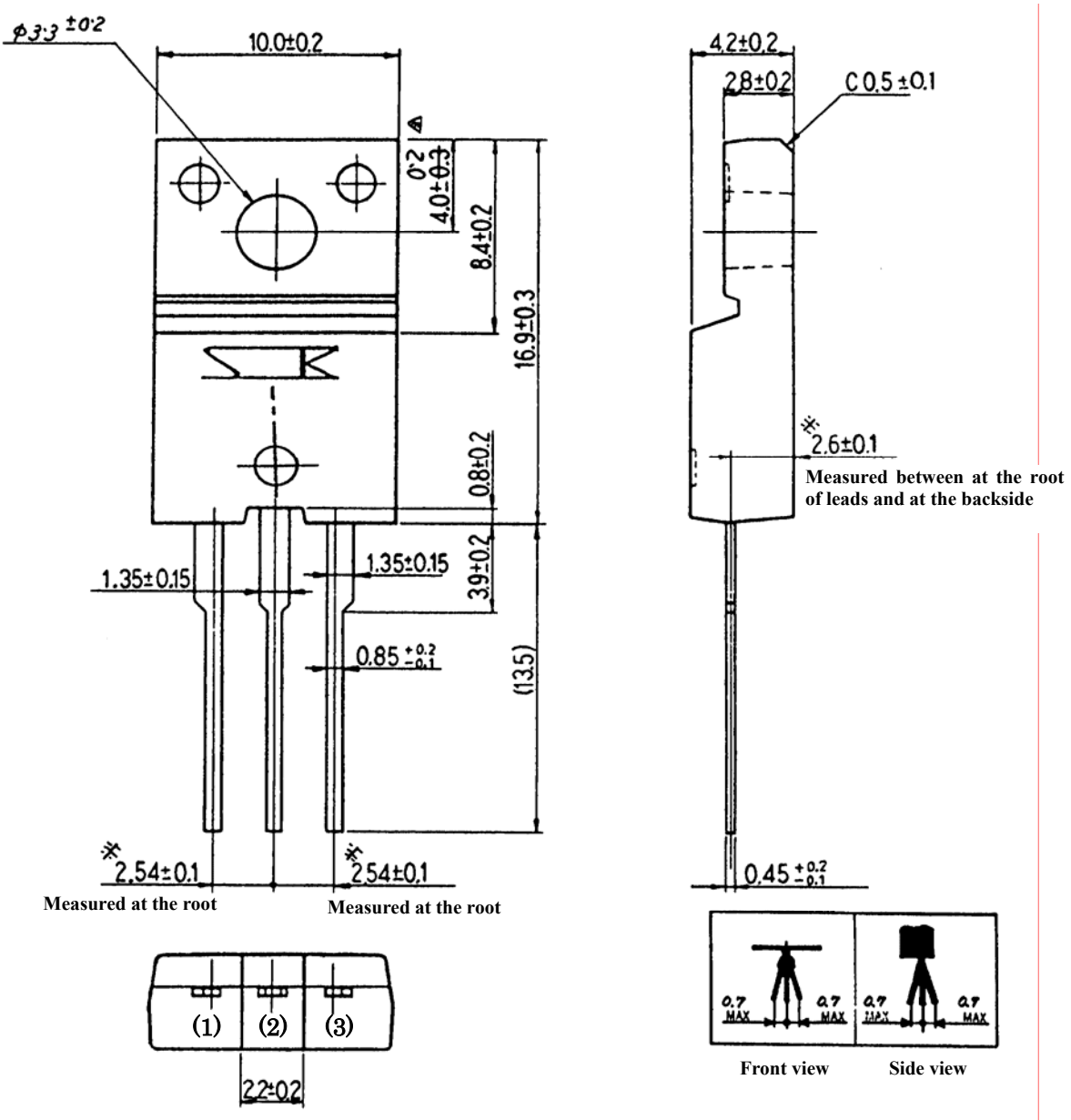

(b) Output waveforms

# FKP252

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## External Dimensions

FM20 (TO220 Full Mold)




Mass: Approx. 2g

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