



FXN25S55GF Series

Rev.A

General Description

The FXN25S55GF uses advanced Silicon's MOSFET Technology, which provides high performance in on-state resistance, fast switching performance, and excellent quality. Discrete Fast Recover Diode is Characterized for Use in Bridge Circuits

These devices can also be utilized in industrial applications such as Low Power Drives SMPS, DC/DC converter, and general purpose applications.

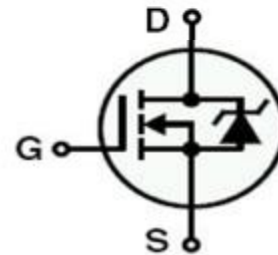


To-220F Top View

Features

- VDS = 550V
- ID = 25A @VGS = 10V
- Very low on-resistance
- RDS(ON) < 120mΩ @VGS = 10V
- 100% UIL Tested
- 100% Rg Tested
- 175 °C operating temperature

N-channel



Schematic Diagram

Absolute Maximum Ratings (T_J = 25 °C)

| Characteristics | | Symbol | Rating | Unit |
|--|---------------------------|----------|---------|------|
| Drain-Source Voltage | | VDSS | 550 | V |
| Gate-Source Voltage | | VGSS | ±30 | V |
| Continuous Drain Current (1) | Tc=25°C(silicon limited) | ID | 25 | A |
| | Tc=25°C(package limited) | | 23 | |
| | Tc=100°C(silicon limited) | | 20 | |
| Pulsed Drain Current (2) | | IDM | 80 | |
| Power Dissipation | Tc=25°C | PD | 49 | W |
| | Tc=100°C | | 47 | |
| Single Pulse Avalanche Energy (3) | | EAS | 480 | mJ |
| Junction and Storage Temperature Range | | TJ, Tstg | -55~175 | °C |

Thermal Characteristics

| Characteristics | Symbol | Rating | Unit |
|---|--------|--------|------|
| Thermal Resistance, Junction-to-Ambient (1) | RθJA | 62.5 | °C/W |
| Thermal Resistance, Junction-to-Case | RθJC | 3.2 | |



Electrical Characteristics (T_J = 25°C)

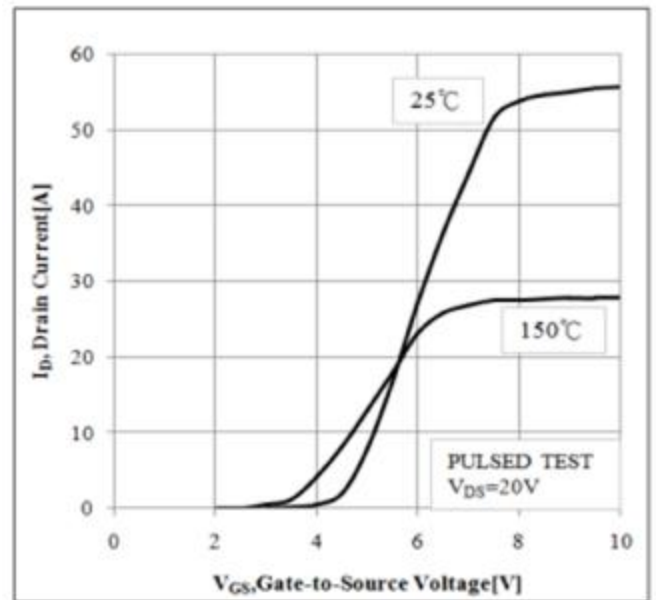
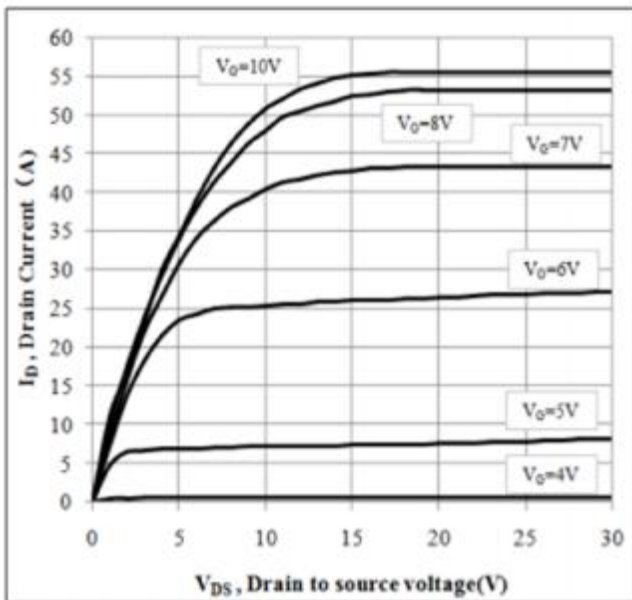
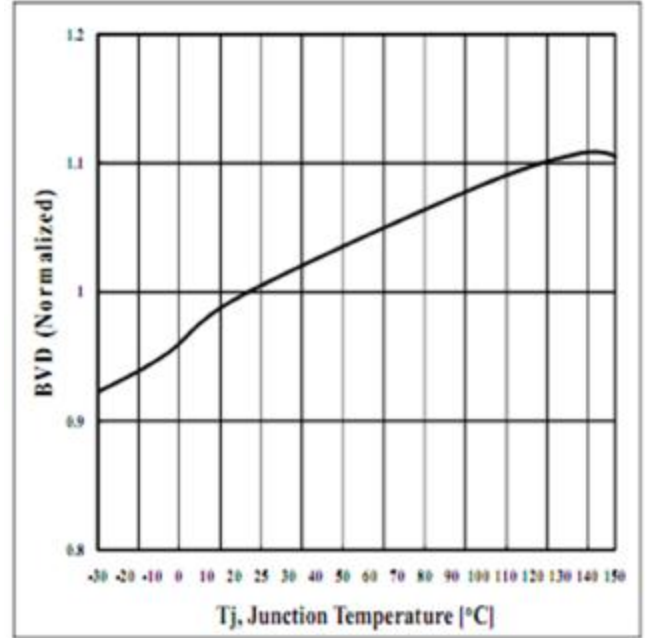
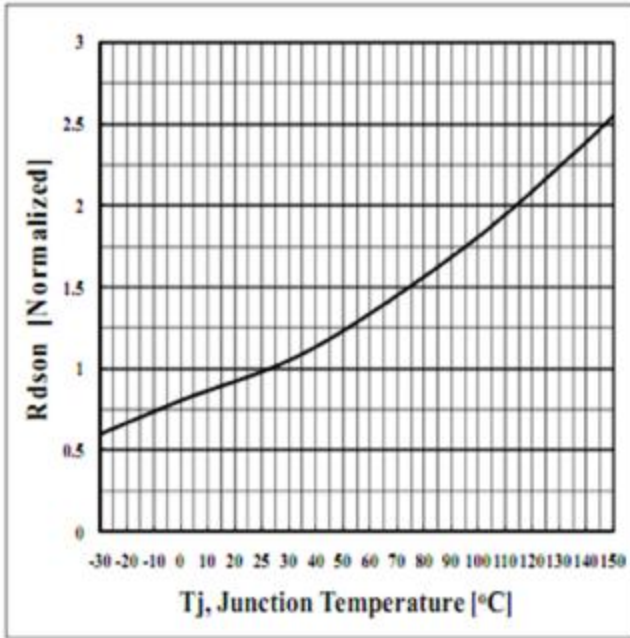
| Characteristics | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|---------------------|--|-----|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | I _D = 250μA, V _{GS} = 0V | 550 | - | - | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 2.0 | 3.0 | 4.0 | V |
| Drain Cut-Off Current | I _{DSS} | V _{DS} = 550V, V _{GS} = 0V | - | - | 1 | μA |
| Gate Leakage Current | I _{GSS} | V _{GS} = ±30V, V _{DS} = 0V | - | - | ±0.1 | |
| Drain-Source ON Resistance | R _{DS(ON)} | V _{GS} = 10V, I _D = 9A | - | 0.11 | 0.13 | Ω |
| Forward Transconductance | g _{fs} | V _{DS} = 10V, I _D = 9A | - | 55 | - | S |
| Dynamic Characteristics | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 520V, I _D = 25A, V _{GS} = 10V | - | 42 | - | nC |
| Gate-Source Charge | Q _{gs} | | - | 8.1 | - | |
| Gate-Drain Charge | Q _{gd} | | - | 18.6 | - | |
| Input Capacitance | C _{iss} | V _{DS} = 100V, V _{GS} = 0V, f = 1.0MHz | - | 1270 | - | pF |
| Reverse Transfer Capacitance | C _{rss} | | - | 34 | - | |
| Output Capacitance | C _{oss} | | - | 75 | - | |
| Turn-On Delay Time | t _{d(on)} | V _{GS} = 10V, V _{DS} = 300V, I _D = 25A, R _G = 25Ω | - | 16 | - | ns |
| Rise Time | t _r | | - | 78 | - | |
| Turn-Off Delay Time | t _{d(off)} | | - | 59 | - | |
| Fall Time | t _f | | - | 57.6 | - | |
| Gate Resistance | R _g | f = 1 MHz | - | 2.5 | - | Ω |
| Drain-Source Body Diode Characteristics | | | | | | |
| Source-Drain Diode Forward Voltage | V _{SD} | I _S = 25A, V _{GS} = 0V | - | 0.9 | 1.2 | V |
| Body Diode Reverse Recovery Time | t _{rr} | I _F = 25A, di/dt = 100A/μs | - | 152 | - | ns |
| Body Diode Reverse Recovery Charge | Q _{rr} | | - | 3.8 | - | μC |

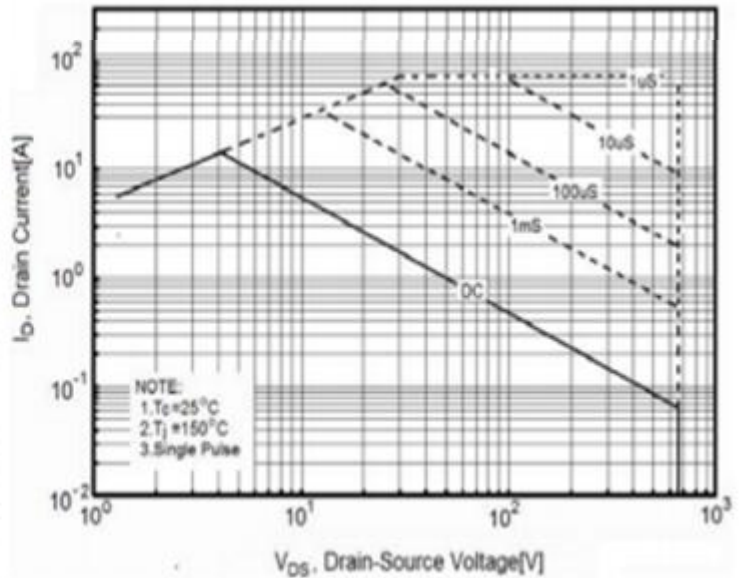
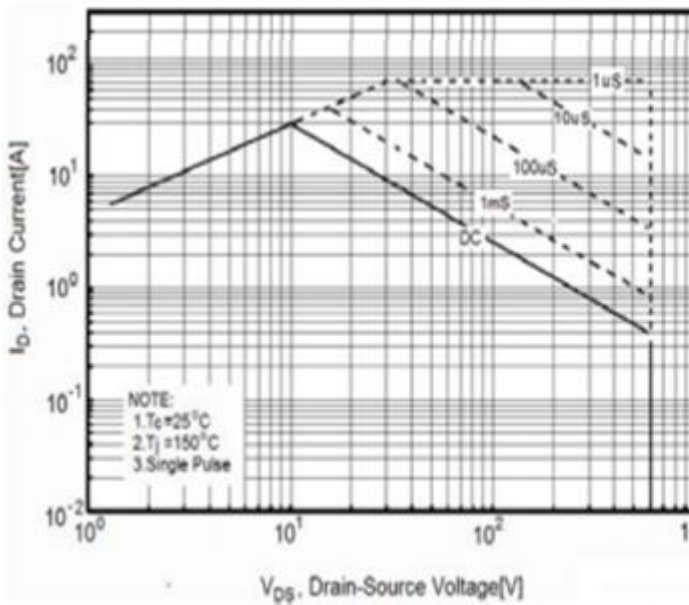
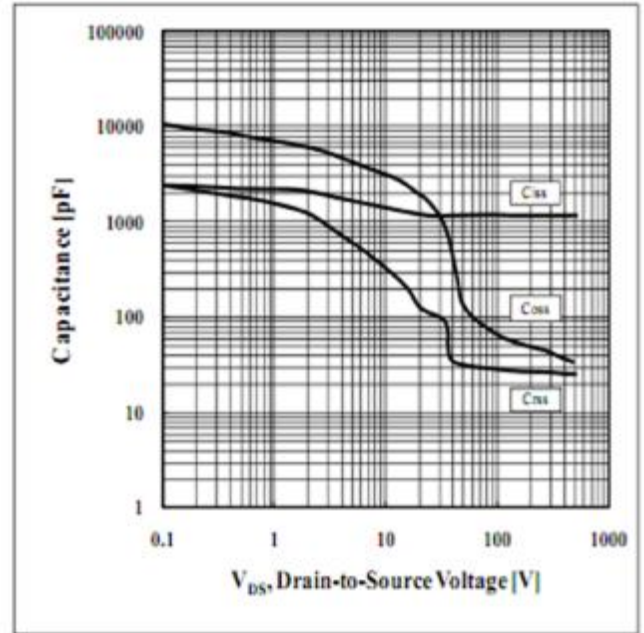
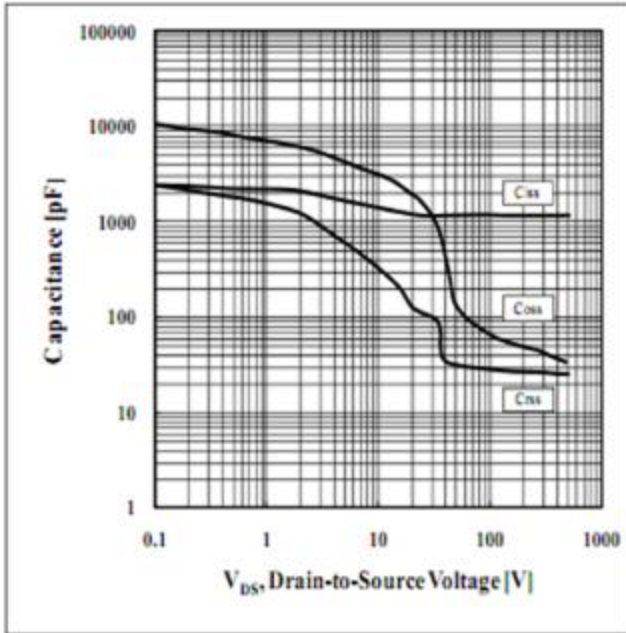
Note

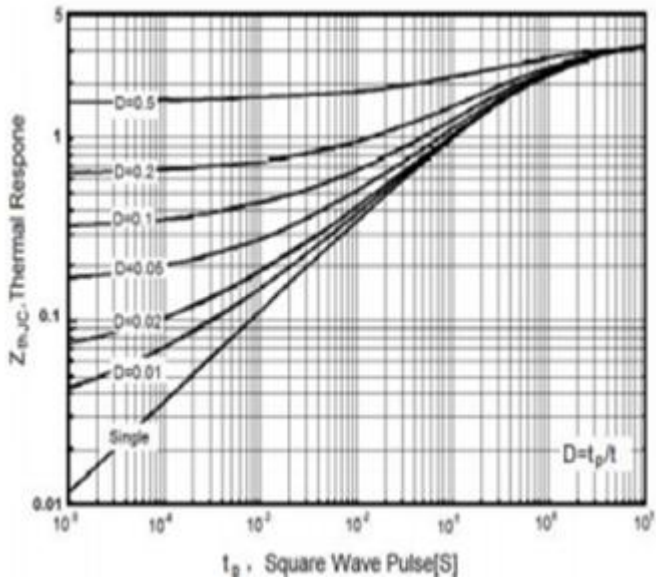
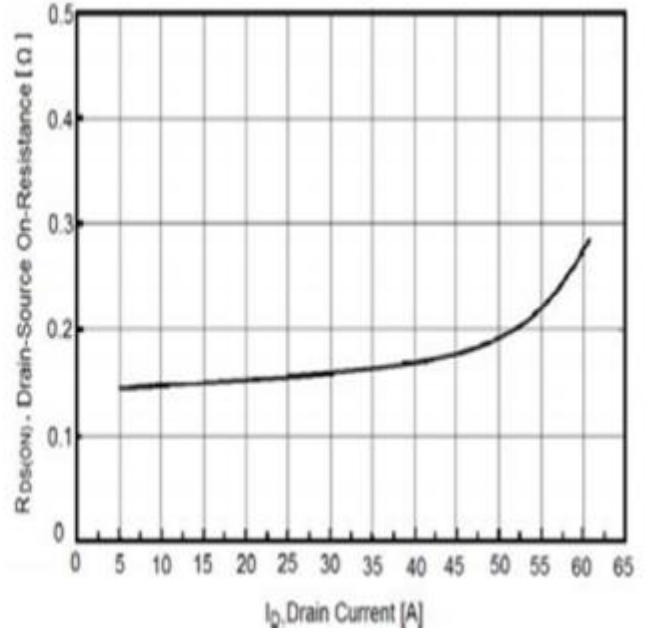
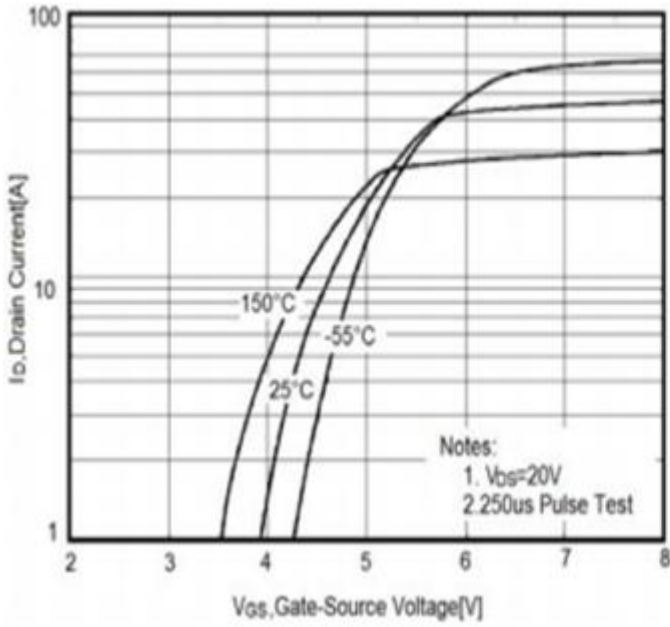
1. Surface mounted FR-4 board by JEDEC (jesd51-7)
2. Pulse width limited by T_{Jmax}
3. E_{AS} is tested at starting T_J = 25°C, L = 1.0mH, I_{AS} = 25A, V_{GS} = 10V



Typical Characteristics (Tj=25C Noted)









TO-220F Package Information

