

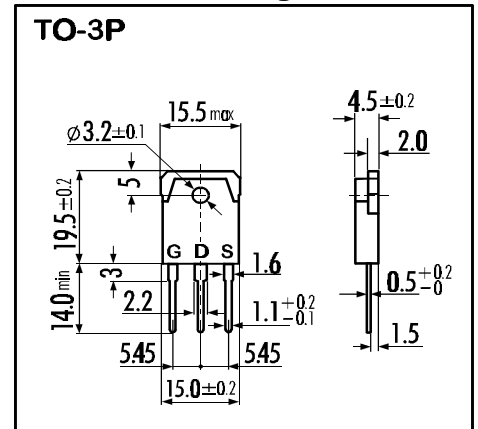
> **Features**

- Include Fast Recovery Diode
- High Voltage
- Low Driving Power

> **Applications**

- Motor Control
- Inverters
- Choppers

> **Outline Drawing**

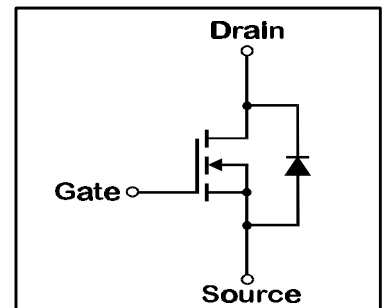


> **Maximum Ratings and Characteristics**

- Absolute Maximum Ratings ($T_C=25^\circ\text{C}$), unless otherwise specified

| Item | Symbol | Rating | Unit |
|---|---------------|------------|------------------|
| Drain-Source-Voltage | V_{DS} | 250 | V |
| Continuous Drain Current | I_D | 30 | A |
| Pulsed Drain Current | $I_{D(puls)}$ | 120 | A |
| Continuous Reverse Drain Current | I_{DR} | 30 | A |
| Gate-Source-Voltage | V_{GS} | ± 20 | V |
| Max. Power Dissipation | P_D | 150 | W |
| Operating and Storage Temperature Range | T_{ch} | 150 | $^\circ\text{C}$ |
| | T_{stg} | -55 ~ +150 | $^\circ\text{C}$ |

> **Equivalent Circuit**



- Electrical Characteristics ($T_C=25^\circ\text{C}$), unless otherwise specified

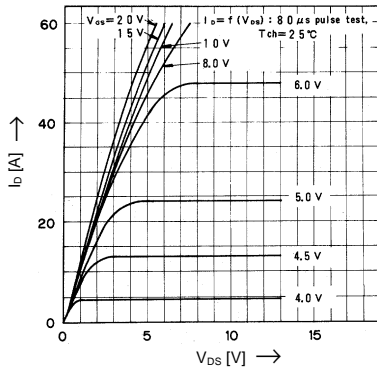
| Item | Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|--|---------------|--|------|------|------|---------------|
| Drain-Source Breakdown-Voltage | $V_{(BR)DSS}$ | $I_D=1\text{mA}$ $V_{GS}=0\text{V}$ | 250 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $I_D=10\text{mA}$ $V_{DS}=V_{GS}$ | 2,1 | 3,0 | 4,0 | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=250\text{V}$ $T_{ch}=25^\circ\text{C}$ $V_{GS}=0\text{V}$ | | 10 | 500 | μA |
| Gate Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$ | | 10 | 100 | nA |
| Drain Source On-State Resistance | $R_{DS(on)}$ | $I_D=15\text{A}$ $V_{GS}=10\text{V}$ | | 0,09 | 0,12 | Ω |
| Forward Transconductance | g_{fs} | $I_D=15\text{A}$ $V_{DS}=25\text{V}$ | 10 | 20 | | S |
| Input Capacitance | C_{iss} | $V_{DS}=25\text{V}$ | | 2400 | 3600 | pF |
| Output Capacitance | C_{oss} | $V_{GS}=0\text{V}$ | | 500 | 750 | pF |
| Reverse Transfer Capacitance | C_{rss} | $f=1\text{MHz}$ | | 280 | 420 | pF |
| Turn-On-Time t_{on} ($t_{on}=t_{d(on)}+t_r$) | $t_{d(on)}$ | $V_{CC}=150\text{V}$ | | 35 | 50 | ns |
| | t_r | $I_D=30\text{A}$ | | 140 | 210 | ns |
| Turn-Off-Time t_{off} ($t_{off}=t_{d(off)}+t_f$) | $t_{d(off)}$ | $V_{GS}=10\text{V}$ | | 420 | 630 | ns |
| | t_f | $R_{GS}=25\ \Omega$ | | 180 | 270 | ns |
| Diode Forward On-Voltage | V_{SD} | $I_F=I_{DR}$ $V_{GS}=0\text{V}$ $T_{ch}=25^\circ\text{C}$ | | 0,9 | 1,8 | V |
| Reverse Recovery Time | t_{rr} | $I_F=I_{DR}$ $V_{GS}=0\text{V}$ | | 100 | 150 | ns |
| | | $-di_F/dt=100\text{A}/\mu\text{s}$ $T_{ch}=25^\circ\text{C}$ | | | | |

- Thermal Characteristics

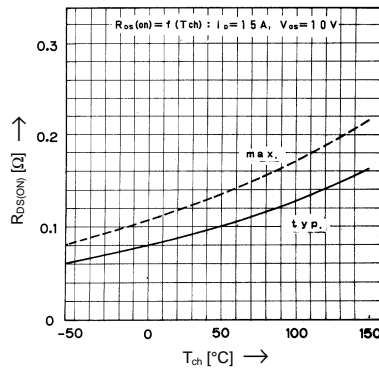
| Item | Symbol | Test conditions | Min. | Typ. | Max. | Unit |
|--------------------|----------------|-----------------|------|------|------|---------------------------|
| Thermal Resistance | $R_{th(ch-a)}$ | channel to air | | | 35 | $^\circ\text{C}/\text{W}$ |
| | $R_{th(ch-c)}$ | channel to case | | | 0,83 | $^\circ\text{C}/\text{W}$ |

> Characteristics

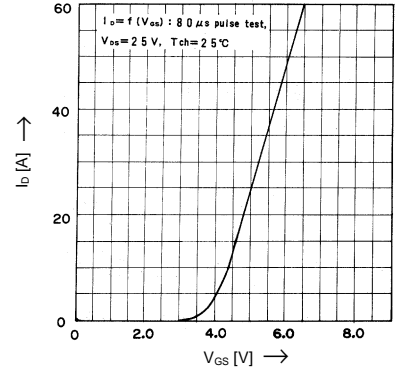
Typical Output Characteristics



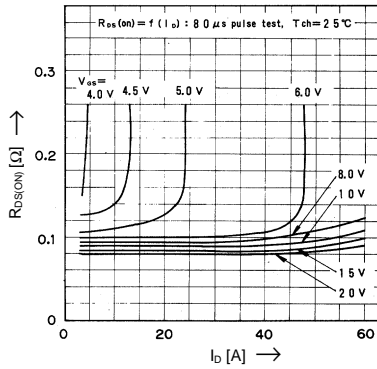
Drain-Source-On-State Resistance vs. T_{ch}



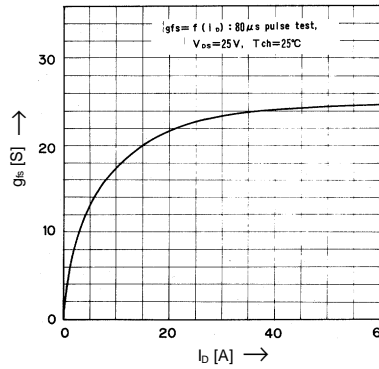
Typical Transfer Characteristics



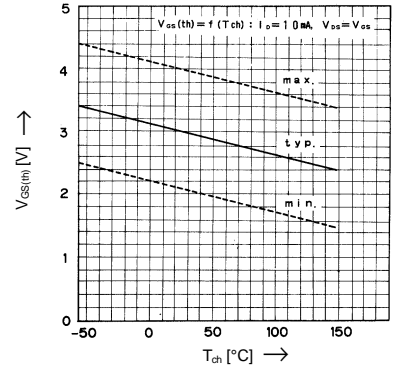
Typical Drain-Source-On-State-Resistance vs. I_D



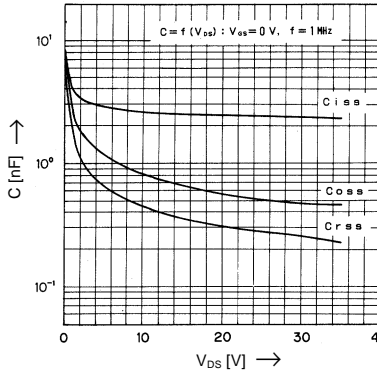
Typical Forward Transconductance vs. I_D



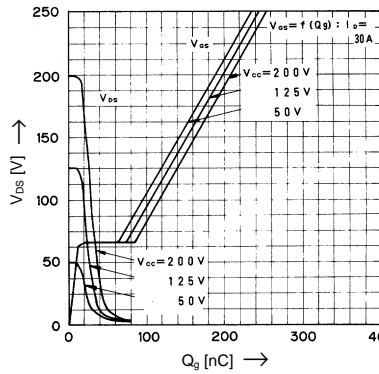
Gate Threshold Voltage vs. T_{ch}



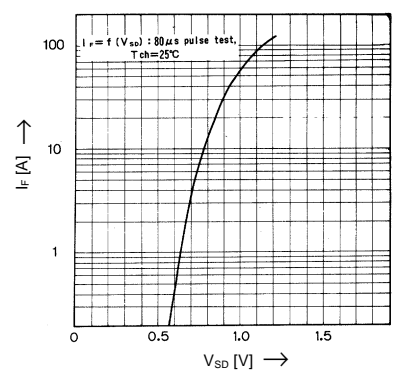
Typical Capacitance vs. V_{DS}



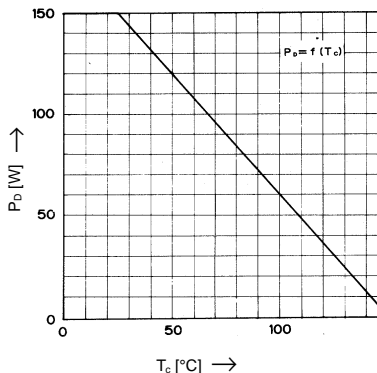
Typical Input Charge



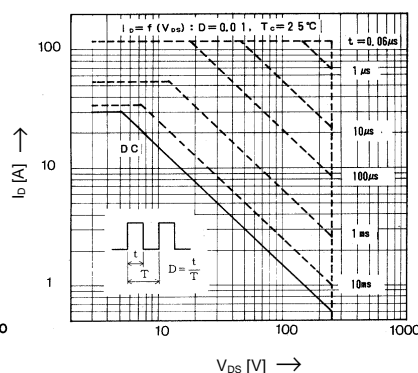
Forward Characteristics of Reverse Diode



Allowable Power Dissipation vs. T_c



Safe operation area



Transient Thermal impedance

