

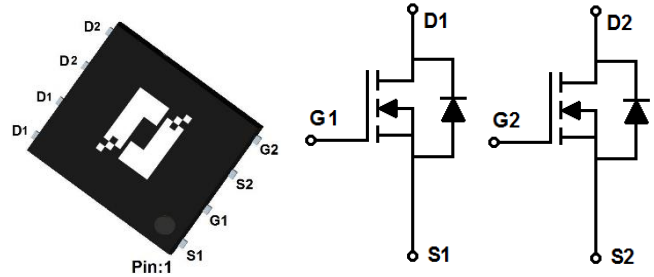
Features

- Low $R_{DS(on)}$ @ $V_{GS}=10V$
- 5V Logic Level Control
- N Channel PDFN5X6 Dual Package
- Pb-Free, RoHS Compliant

| $V_{(BR)DSS}$ | $R_{DS(ON)}$ Typ | I_D Max |
|---------------|--------------------|-----------|
| 100V | 68m Ω @10V | 15A |
| | 96m Ω @4.5V | |

Applications

- Load Switch
- Switching Circuits
- High Speed line Driver
- Power management


PDFN5X6
Order Information

| Product | Package | Marking | Packing |
|-----------|---------|---------|--------------|
| DWN075M10 | PDFN5X6 | 075M10 | 5000PCS/Reel |

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

| Symbol | Parameter | Rating | Unit | |
|--|--|------------------------|------------------|--------------------|
| Common Ratings ($T_A=25^\circ\text{C}$ Unless Otherwise Noted) | | | | |
| V_{GS} | Gate-Source Voltage | ± 25 | V | |
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | 100 | V | |
| T_J | Maximum Junction Temperature | 150 | $^\circ\text{C}$ | |
| T_{STG} | Storage Temperature Range | -50 to 150 | $^\circ\text{C}$ | |
| Mounted on Large Heat Sink | | | | |
| I_{DM} | Pulse Drain Current Tested ^① | $T_A=25^\circ\text{C}$ | 22 | A |
| I_D | Continuous Drain Current | $T_A=25^\circ\text{C}$ | 15 | A |
| | | $T_A=70^\circ\text{C}$ | 12 | |
| P_D | Maximum Power Dissipation | $T_A=25^\circ\text{C}$ | 25 | W |
| EAS | Avalanche energy, single pulsed ^② | | 33.8 | mJ |
| $R_{\theta JC}$ | Thermal Resistance Junction-Ambient | | 3 | $^\circ\text{C/W}$ |

| Symbol | Parameter | Condition | Min | Typ | Max | Unit |
|--|--|---|-----|-----|------|------|
| Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated) | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V I _D =250μA | 100 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current(T _A =25°C) | V _{DS} =100V, V _{GS} =0V | - | - | 1 | μA |
| | Zero Gate Voltage Drain Current(T _A =125°C) | V _{DS} =80V, V _{GS} =0V | - | - | 100 | μA |
| I _{GSS} | Gate-Body Leakage Current | V _{GS} =±25V, V _{DS} =0V | - | - | ±100 | nA |
| V _{GS(TH)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250μA | 1.5 | 2.2 | 3.0 | V |
| R _{DS(ON)} | Drain-Source On-State Resistance② | V _{GS} =10, I _D =4A | - | 68 | 95 | mΩ |
| R _{DS(ON)} | Drain-Source On-State Resistance② | V _{GS} =7, I _D =4A | - | 70 | 100 | mΩ |
| R _{DS(ON)} | Drain-Source On-State Resistance② | V _{GS} =4.5, I _D =3A | - | 96 | 125 | mΩ |
| Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated) | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =50V, V _{GS} =0V, f=1MHz | - | 851 | - | pF |
| C _{oss} | Output Capacitance | | - | 31 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 27 | - | pF |
| Q _g | Total Gate Charge | V _{DS} =50V I _D =5A, V _{GS} =10V | - | 1.6 | - | nC |
| Q _{gs} | Gate Source Charge | | - | 3.3 | - | nC |
| Q _{gd} | Gate Drain Charge | | - | 6.1 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn on Delay Time | V _{DD} =50V, I _D =1A, R _G =3.3Ω, V _{GS} =10V | - | 4.5 | - | ns |
| t _r | Turn on Rise Time | | - | 6.4 | - | ns |
| t _{d(off)} | Turn Off Delay Time | | - | 19 | - | ns |
| t _f | Turn Off Fall Time | | - | 3.6 | - | ns |
| Source Drain Diode Characteristics | | | | | | |
| I _{SD} | Source drain current(Body Diode) | T _A =25°C | - | - | 15 | A |
| V _{SD} | Forward on voltage② | T _j =25°C, I _{SD} =2A, V _{GS} =0V | - | - | 1.2 | V |

Notes: ① Pulse width limited by maximum allowable junction temperature

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.1mH, R_G = 25Ω, I_{AS} = 25A, V_{GS} = 10V. Part not recommended for use above this value

③ Pulse width ≤ 300μs; duty cycle ≤ 2%.

Typical Characteristics

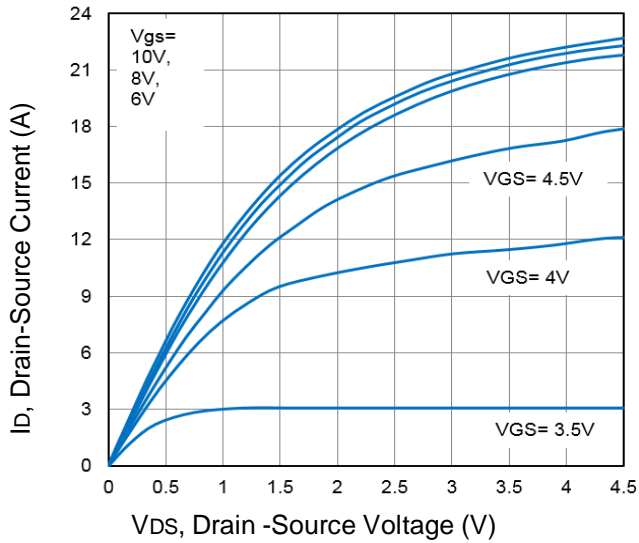


Fig1. Typical Output Characteristics

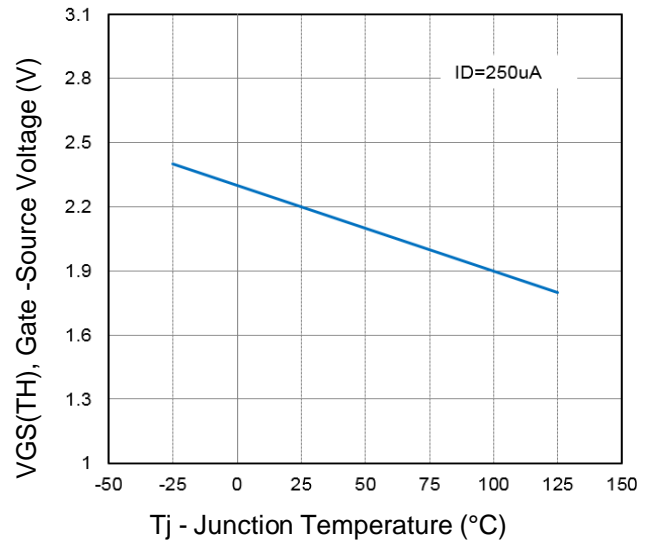


Fig2. Normalized Threshold Voltage Vs. Temperature

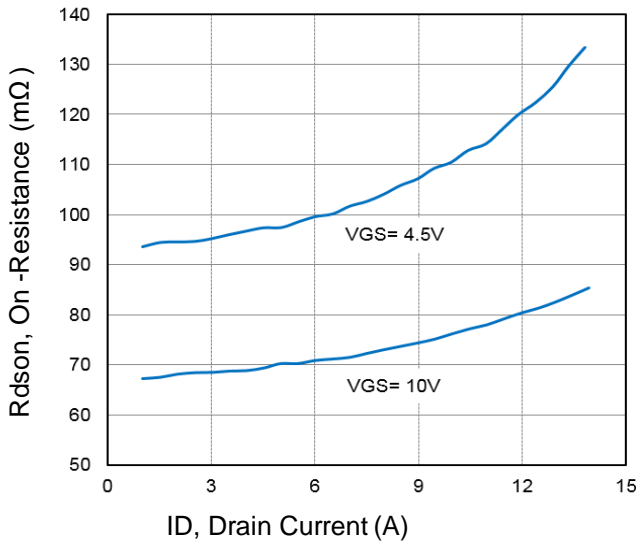


Fig3. On-Resistance vs. Drain Current and Gate

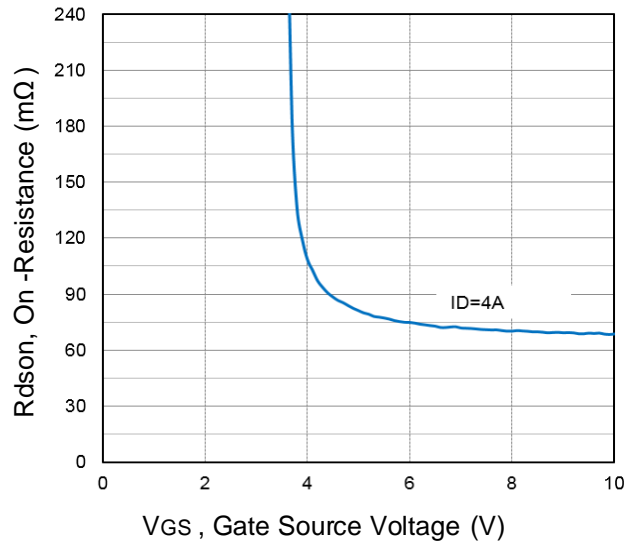


Fig4. On-Resistance vs. Gate Source Voltage

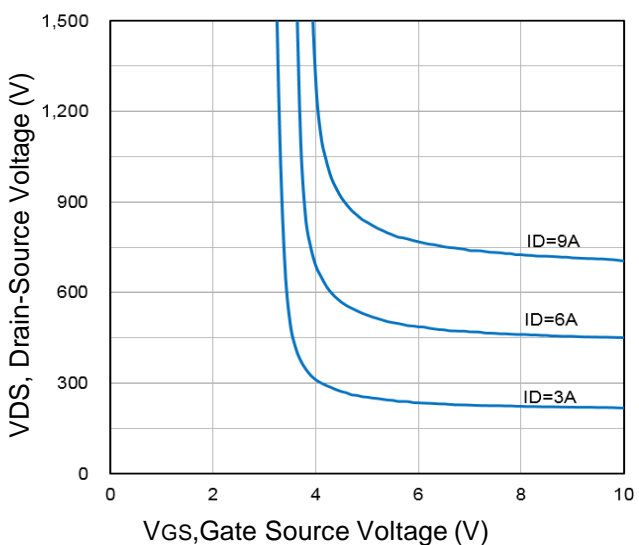


Fig5. Drain-Source Voltage vs Gate-Source Voltage

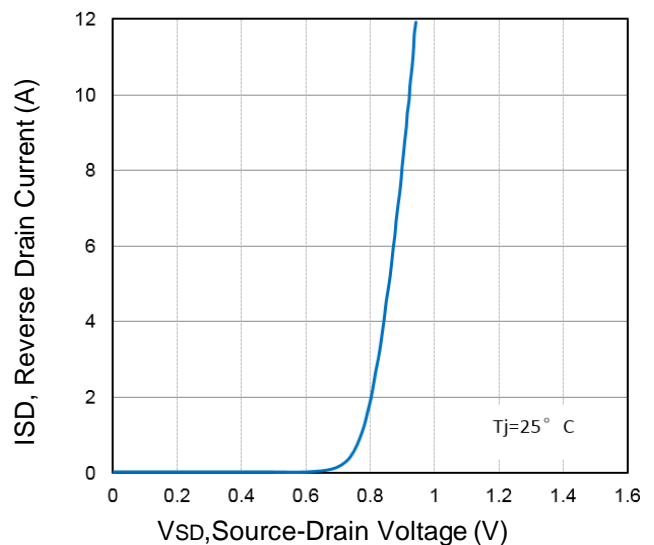


Fig6. Typical Source-Drain Diode Forward Voltage

Typical Characteristics

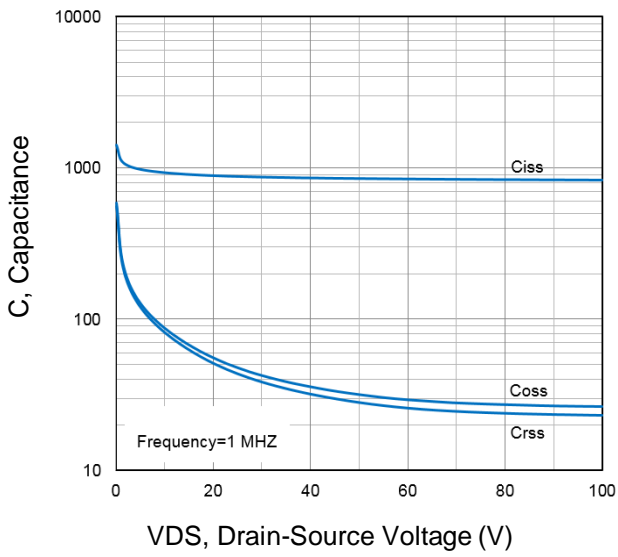


Fig7. Typical Capacitance Vs. Drain-Source Voltage

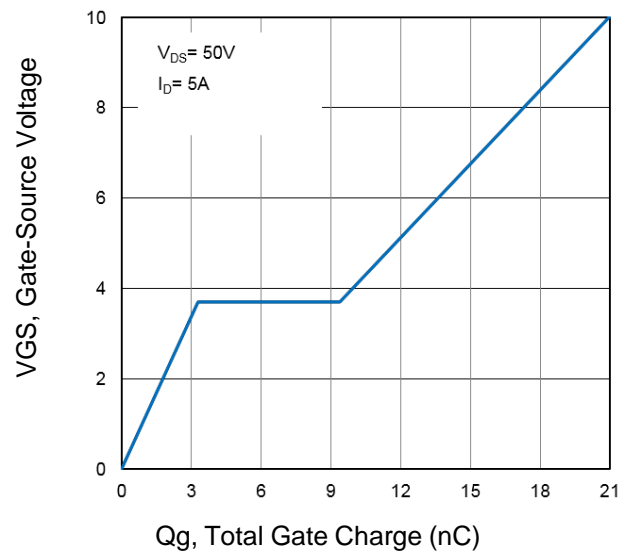
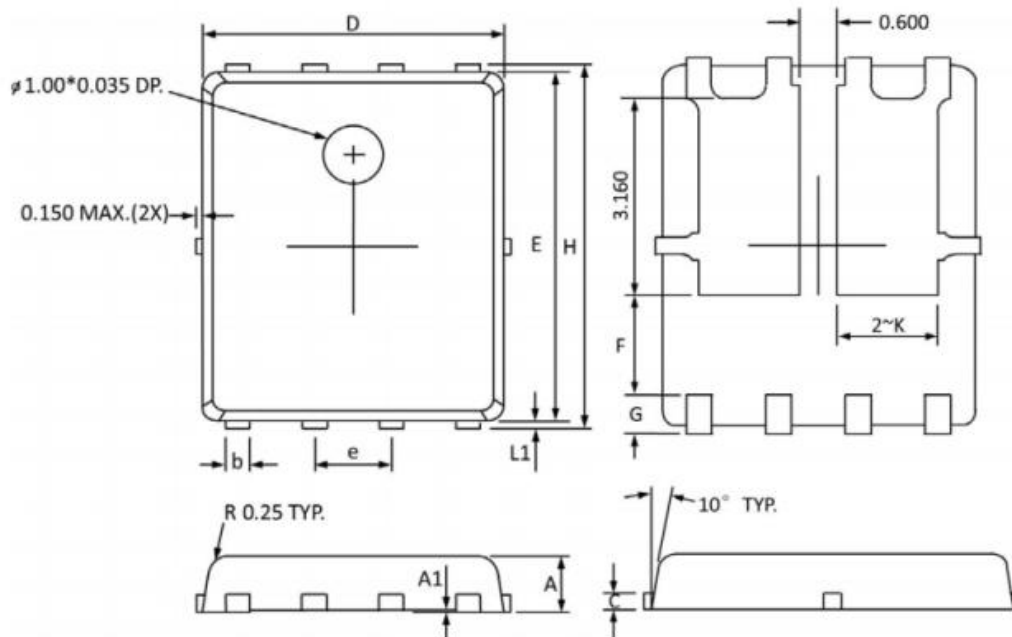


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

PDFN5X6 Mechanical Data



DIMENSIONS (unit : mm)

| Symbol | Min | Typ | Max | Symbol | Min | Typ | Max |
|--------|------|----------|------|--------|-------|-----------|-------|
| A | 0.90 | 1.00 | 1.10 | A1 | 0.000 | -- | 0.005 |
| b | 0.35 | 0.42 | 0.49 | C | -- | 0.254 Ref | -- |
| D | 4.85 | 5.00 | 5.15 | E | 5.70 | 5.80 | 5.90 |
| e | -- | 1.27 BSC | -- | F | -- | 1.60 Ref | -- |
| G | -- | 0.60 Ref | -- | H | 5.95 | 6.12 | 6.20 |
| L1 | 0.10 | 0.14 | 0.18 | K | -- | 1.60 Ref | -- |

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