

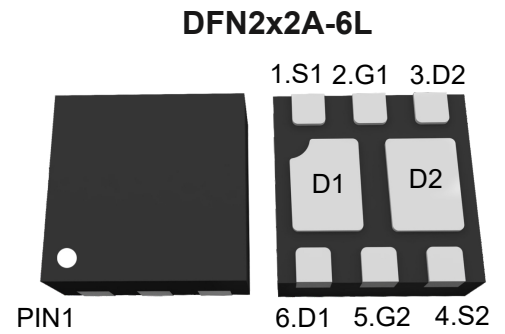


PJM05DN20DFA

Dual N-Channel Enhancement Mode Power MOSFET

Features

- Low gate charge and $R_{DS(ON)}$
- $V_{DS} = 20V, I_D = 5.5A$
 $R_{DS(on)} < 28m\Omega @ V_{GS} = 4.5V$

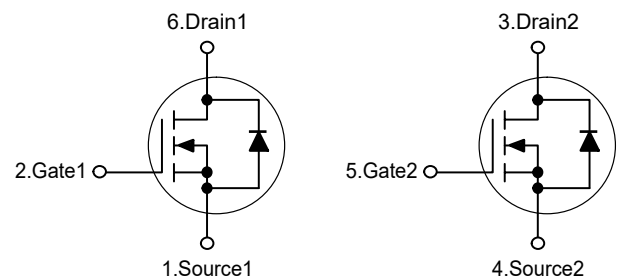


Marking Code: 05DN20

Applications

- DC/DC Converter
- Load Switch for Portable Devices

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|---------------------------------------|-----------|-------------|------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Drain Current-Continuous | I_D | 5.5 | A |
| Drain Current-Pulsed ^{Note1} | I_{DM} | 18 | A |
| Maximum Power Dissipation | P_D | 1 | W |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Thermal Characteristics

| | | | |
|--|-----------------|-----|------|
| Thermal Resistance, Junction-to-Ambient ^{Note2} | $R_{\theta JA}$ | 125 | °C/W |
|--|-----------------|-----|------|



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Electrical Characteristics

(Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------|--|------|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$ | 20 | -- | -- | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=20V, V_{GS}=0V$ | -- | -- | 1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 12V, V_{DS}=0V$ | -- | -- | ± 100 | nA |
| Gate Threshold Voltage ^{Note3} | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 0.45 | -- | 1 | V |
| Drain-Source On-Resistance ^{Note3} | $R_{DS(on)}$ | $V_{GS}=4.5V, I_D=4A$ | -- | -- | 28 | m Ω |
| | | $V_{GS}=2.5V, I_D=3A$ | -- | -- | 35 | m Ω |
| | | $V_{GS}=1.8V, I_D=2A$ | -- | -- | 55 | m Ω |
| Forward Transconductance ^{Note3} | g_{FS} | $V_{DS}=5V, I_D=3A$ | -- | 8 | -- | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=10V, V_{GS}=0V, f=1MHz$ | -- | 300 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 120 | -- | pF |
| Reverse Transfer Capacitance | C_{rss} | | -- | 80 | -- | pF |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=10V, V_{GS}=4.5V$ $I_D=3A, R_{GEN}=6\Omega$ | -- | 10 | -- | nS |
| Turn-on Rise Time | t_r | | -- | 50 | -- | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 17 | -- | nS |
| Turn-off Fall Time | t_f | | -- | 10 | -- | nS |
| Total Gate Charge | Q_g | $V_{DS}=10V, V_{GS}=4.5V$ $I_D=4A$ | -- | 4.0 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 0.65 | -- | nC |
| Gate-Drain Charge | Q_{gd} | | -- | 1.2 | -- | nC |
| Source-Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ^{Note3} | V_{SD} | $V_{GS}=0V, I_S=5.5A$ | -- | -- | 1.2 | V |
| Diode Forward Current ^{Note2} | I_S | | -- | -- | 5.5 | A |

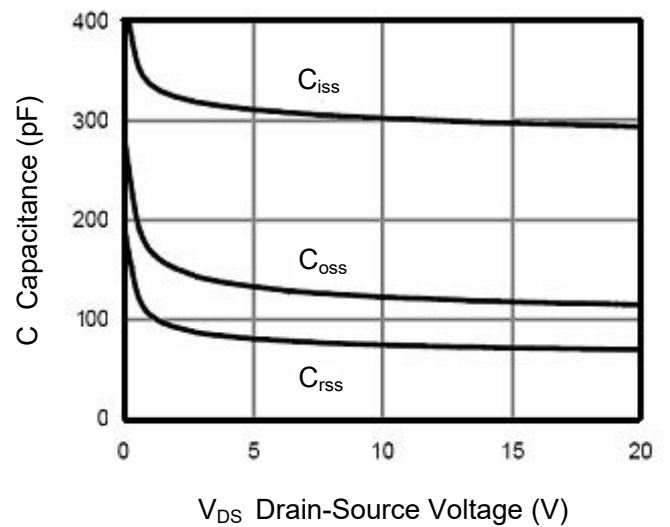
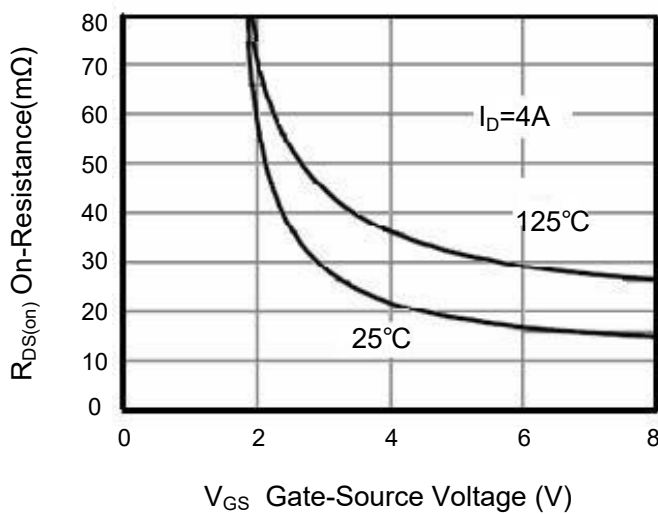
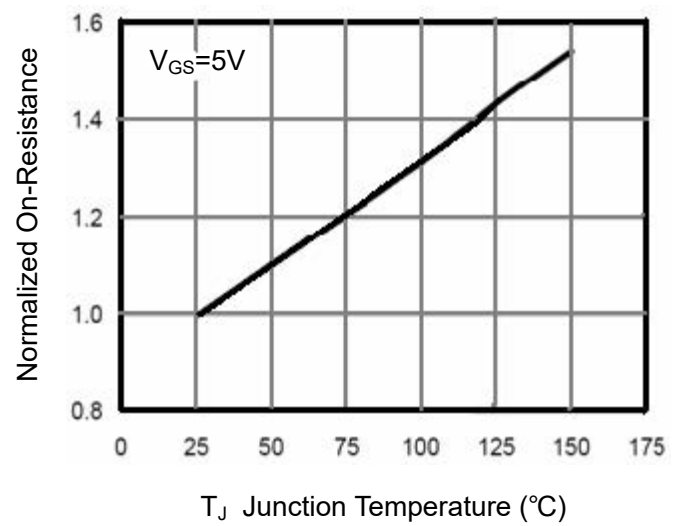
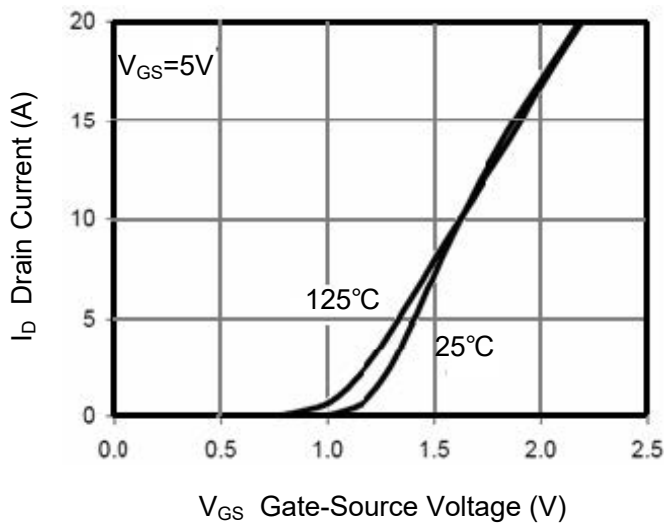
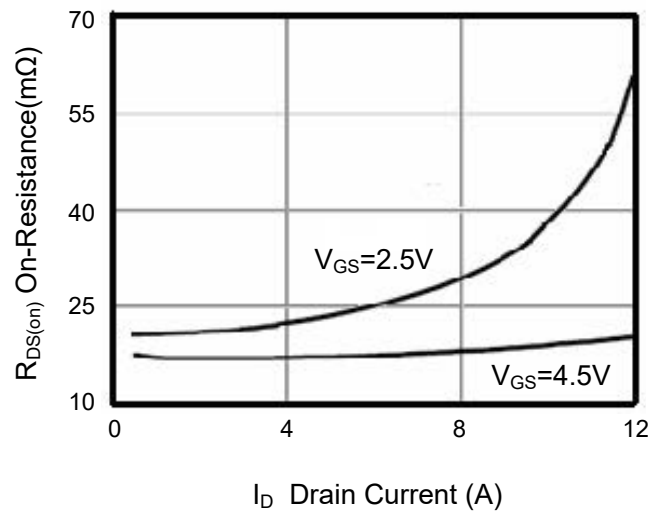
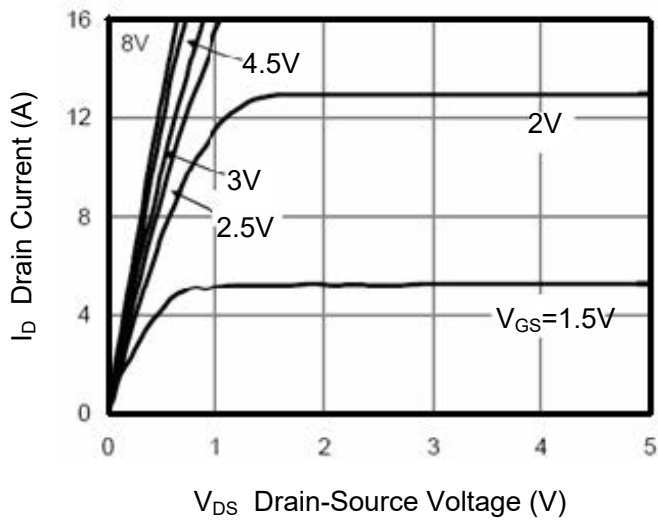
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$



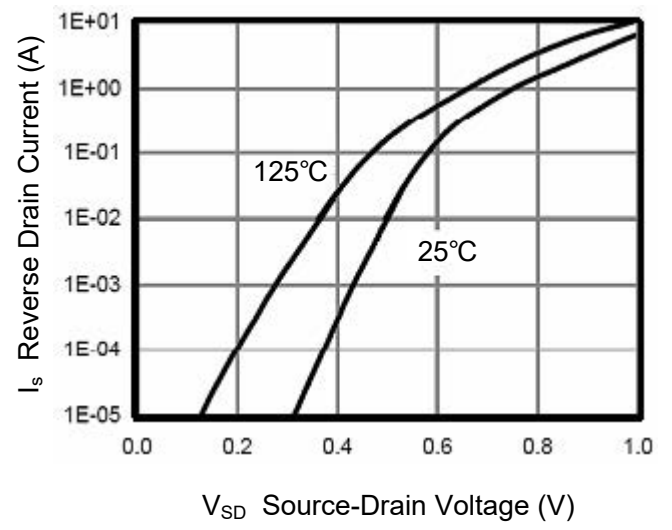
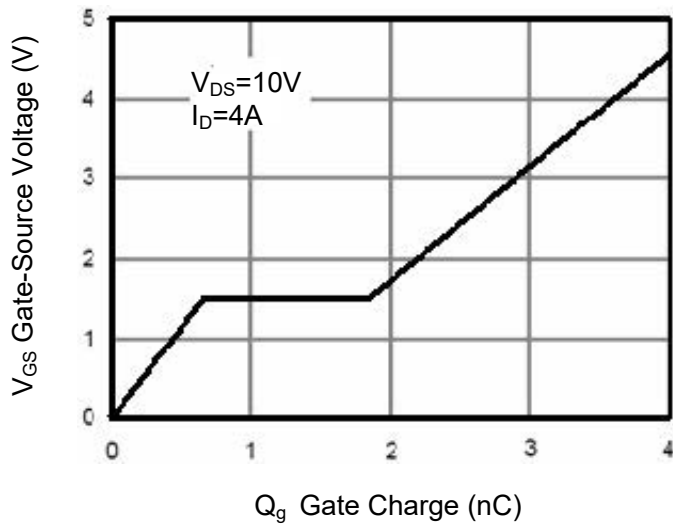
Typical Characteristic Curves





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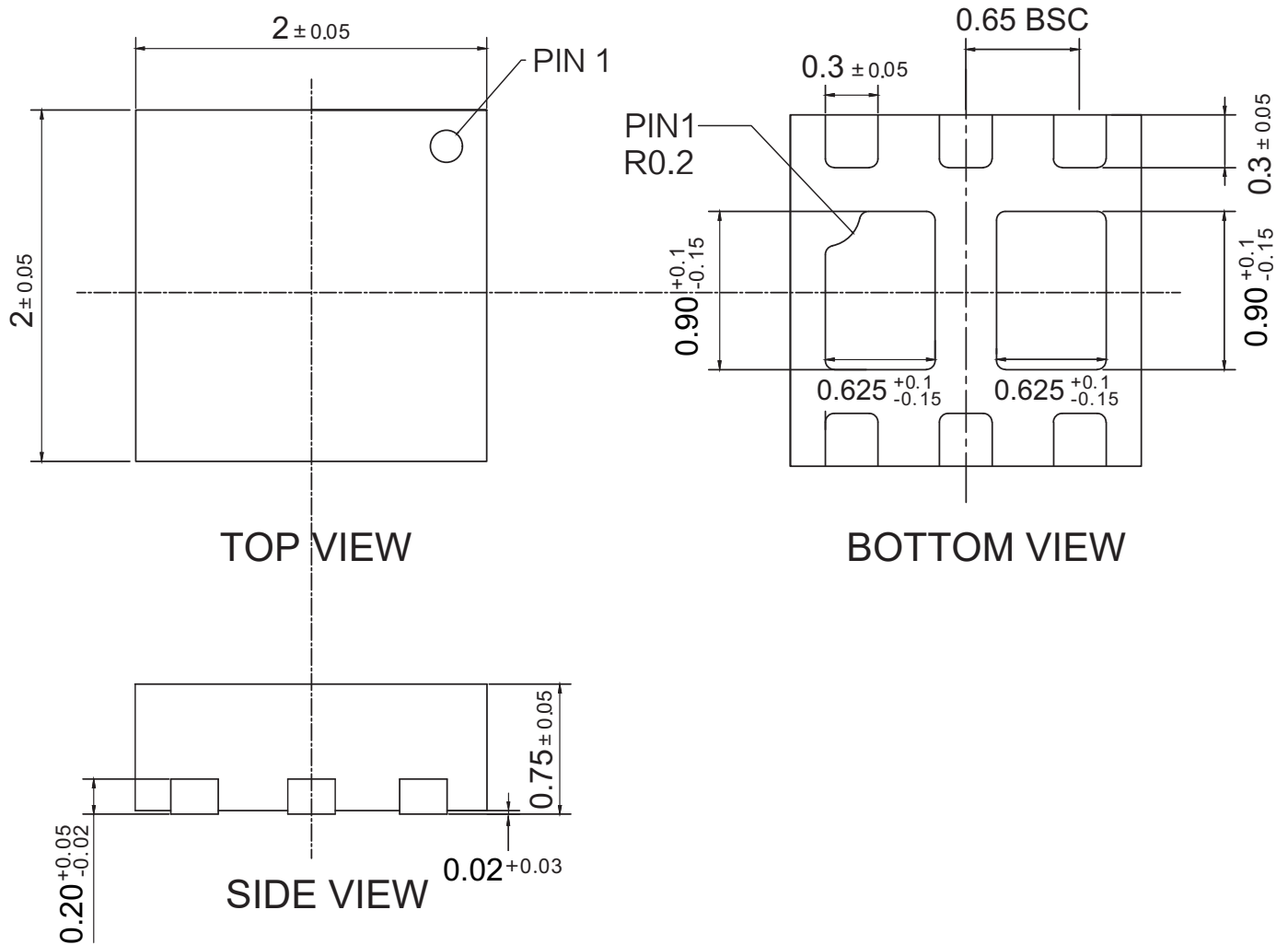
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Package Outline

DFN2x2-6L-0002

Dimensions in mm



Ordering Information

| Device | Package | Shipping |
|--------------|------------|-----------------------|
| PJM05DN20DFA | DFN2x2A-6L | 3,000PCS/Reel&7inches |