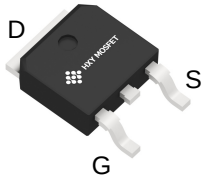
## Description

The FDD3672 uses advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

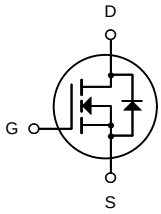



**TO-252-2L**

## General Features

$V_{DS}$= 100V $I_D$= 30A

$R_{DS(ON)}$< 30 mΩ@ $V_{GS}$=10V




N-Channel MOSFET

## Application

Battery protection

Load switch

Uninterruptible power supply

## Ordering Information

| Product ID | Pack | Brand | Qty(PCS) |
|---|---|---|---|
| FDD3672 | TO-252-2L | HXY MOSFET | 2500 |

## Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

| Symbol | Parameter | Rating | Units |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | 100 | V |
| $V_{GS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Drain Current – Continuous ($T_C$=25°C) | 30 | A |
| | Drain Current – Continuous ($T_C$=100°C) | 20 | A |
| $I_{DM}$ | Drain Current – Pulsed | 120 | A |
| EAS | Single Pulse Avalanche Energy | 56 | mJ |
| IAS | Single Pulse Avalanche Current | 42 | A |
| $P_D$ | Power Dissipation ($T_C$=25°C) | 88 | W |
| | Power Dissipation – Derate above 25°C | 0.43 | W/°C |
| $T_{STG}$ | Storage Temperature Range | -55 to 175 | °C |
| $T_J$ | Operating Junction Temperature Range | -55 to 175 | °C |
| $R_{\theta JA}$ | Thermal Resistance Junction to ambient | 62 | °C/W |
| $R_{\theta JC}$ | Thermal Resistance Junction to Case | 1.7 | °C/W |

## Electrical Characteristics ($T_J$=25°C, unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| $BV_{DSS}$ | Drain-Sourtce Breakdown Voltage | $V_{GS}$=0V,$I_D$=250μA | 100 | --- | --- | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{GS}$=0V, $V_{DS}$=100V | --- | --- | 1 | μA |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$=±20V, $V_{DS}$=0A | --- | --- | ±100 | nA |
| $V_{GS(th)}$ | GATE-Source Threshold Voltage | $V_{GS}$=$V_{DS}$, $I_D$=250μA | 1 | 1.5 | 2.5 | V |
| $R_{DS(ON)}$ | Drain-Source On Resistance[2] | $V_{GS}$=10V,$I_D$=20A | --- | 24 | 30 | mΩ |
| | | $V_{GS}$=4.5V,$I_D$=10A | --- | 26 | 34 | mΩ |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=25V, $V_{GS}$=0V, f=1MHz | --- | 2857 | --- | pF |
| $C_{oss}$ | Output Capacitance | | --- | 126 | -- | |
| $C_{rss}$ | Reverse Transfer Capacitance | | --- | 99 | --- | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DS}$=30V, $I_D$=15A, $R_{ENG}$=1.8Ω,$V_{GS}$=10V | --- | 10 | --- | ns |
| $t_r$ | Rise Time | | --- | 44 | --- | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | | --- | 66 | --- | ns |
| $t_f$ | Fall Time | | --- | 47 | --- | ns |
| $Q_{gs}$ | Total Gate Charge | $V_{GS}$=10V, $V_{DS}$=30V, $I_D$=15A | --- | 65 | --- | nc |
| $Q_{gd}$ | Gate-Source Charge | | --- | 9 | --- | nc |
| $Q_g$ | Gate-Drain “Miller” Charge | | --- | 13 | --- | nc |
| $V_{SD}$ | Diode Forward Voltage | $V_{GS}$=0V, $I_{SD}$=30A | --- | --- | 1.2 | V |
| $I_S$ | Continuous Drain Curren | VD=VG=0V | --- | --- | 30 | A |
| $I_{SM}$ | Pulsed Drain Current | | --- | --- | 120 | A |
| Trr | Reverse Recovery Time | $I_F$=30A,$T_J$=25℃ dI/dt=100A/us | --- | 28 | --- | ns |
| Qrr | Reverse Recovery Charge | | --- | 40 | --- | nc |

**Notes:**

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : $T_J$=25℃, $V_{DD}$=50V, $V_G$=10V, L=0.5mH, Rg=25Ω, $I_{AS}$=15A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

## Typical Characteristics

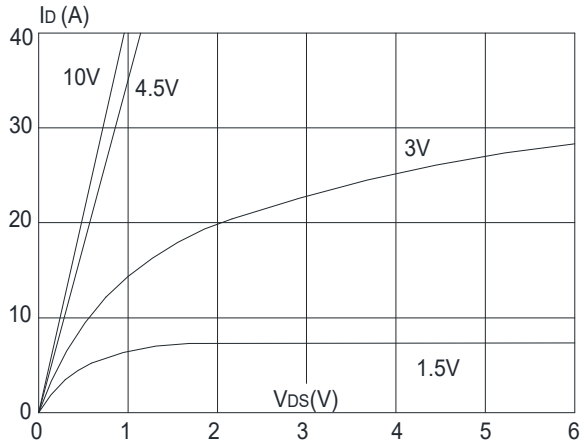



**Figure1:** Output Characteristics

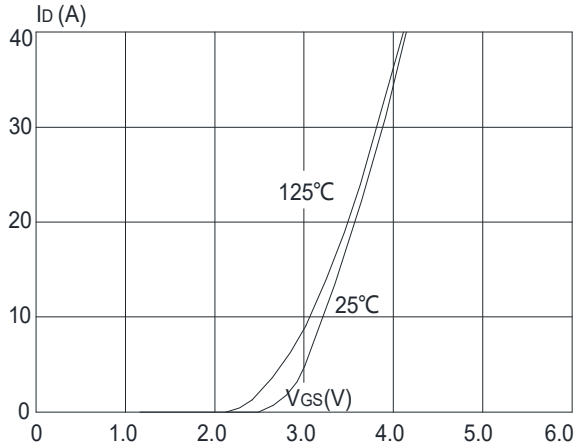



**Figure 2:** Typical Transfer Characteristics

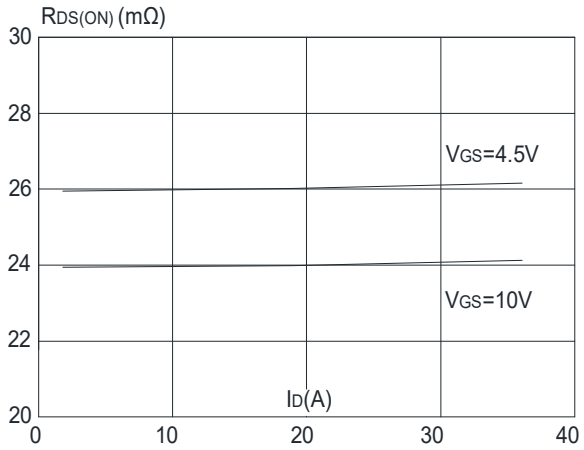



**Figure 3:**On-resistance vs. Drain Current

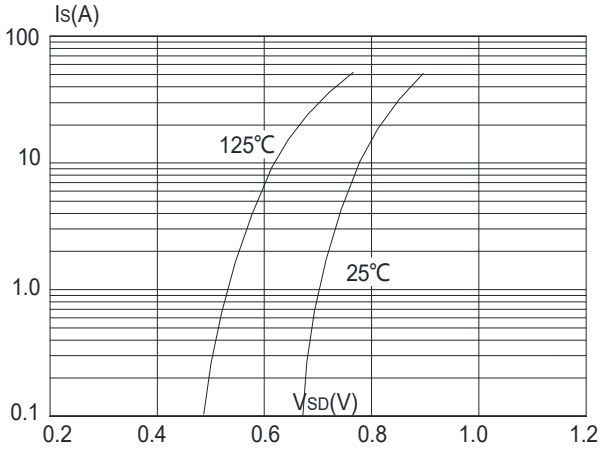



**Figure 4**: Body Diode Characteristics

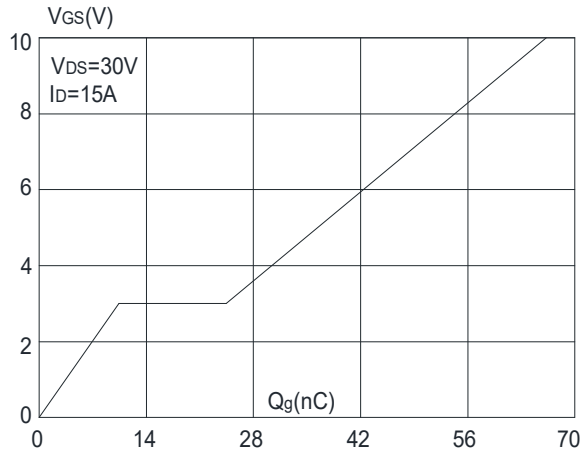



**Figure 5:** Gate Charge Characteristics

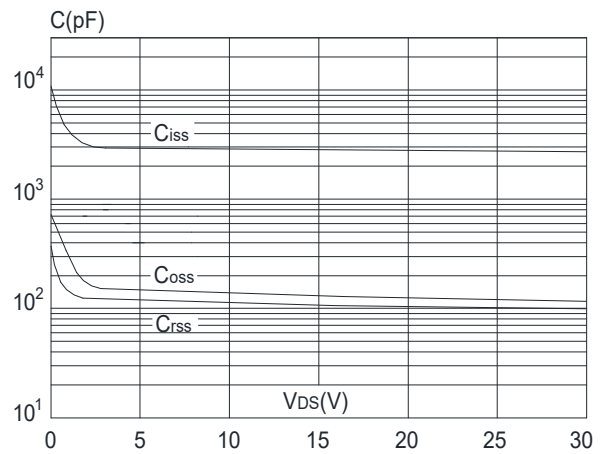



**Figure 6:** Capacitance Characteristics

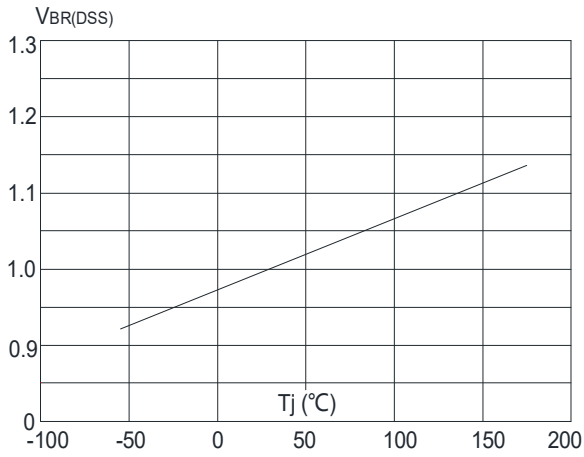



**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature

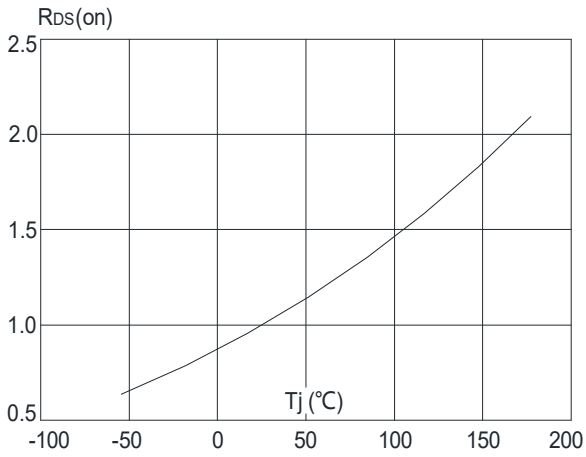



**Figure 8:** Normalized on Resistance vs. Junction Temperature

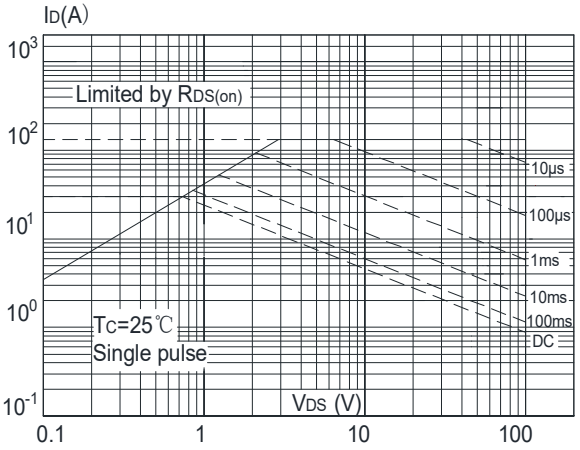



**Figure 9:** Maximum Safe Operating Area

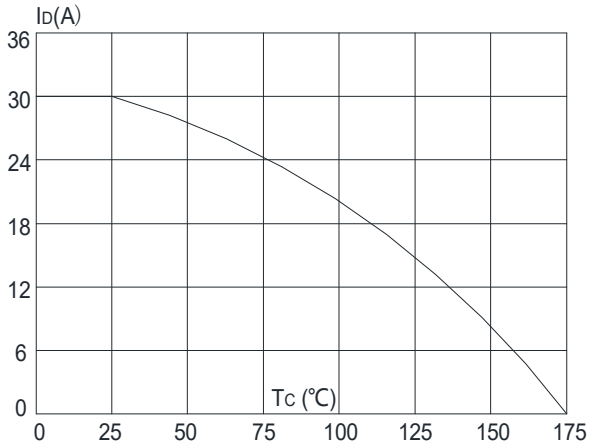



**Figure 10:** Maximum Continuous Drain Current vs. Case Temperature

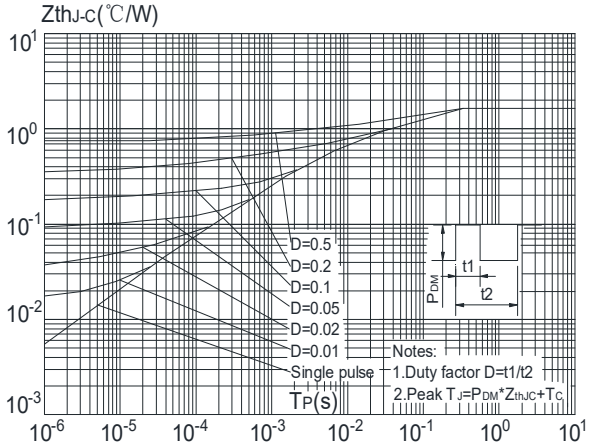
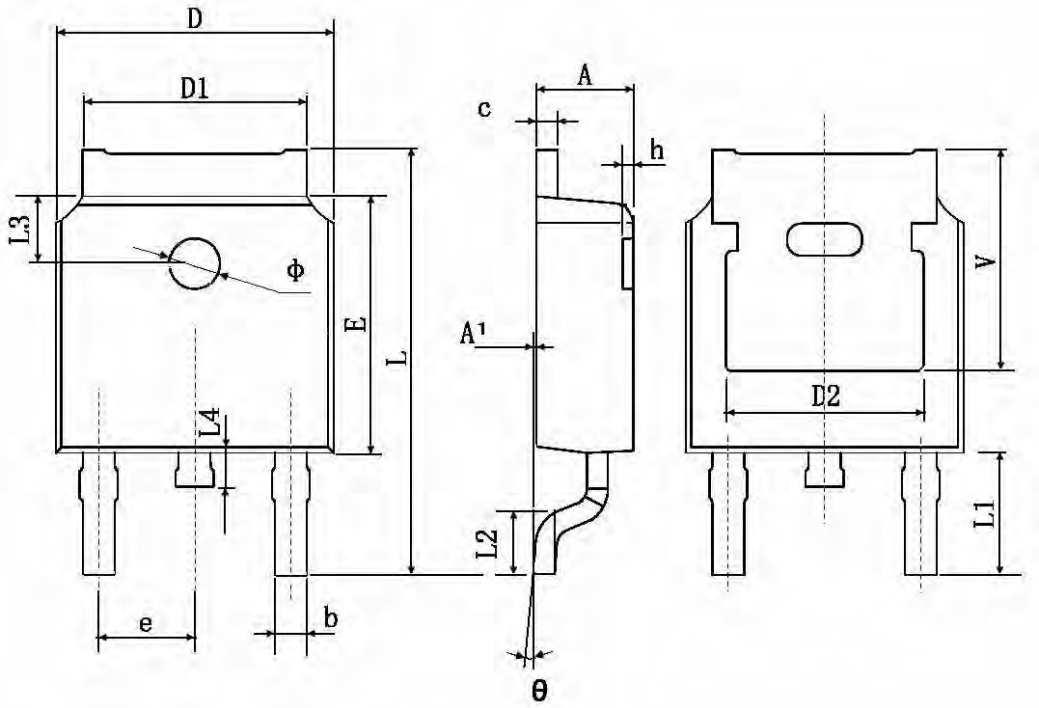



**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Case

## TO-252-2L Package Information




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 0.000 | 0.127 | 0.000 | 0.005 |
| b | 0.660 | 0.860 | 0.026 | 0.034 |
| c | 0.460 | 0.580 | 0.018 | 0.023 |
| D | 6.500 | 6.700 | 0.256 | 0.264 |
| D1 | 5.100 | 5.460 | 0.201 | 0.215 |
| D2 | 0.483 TYP. | | 0.190 TYP. | |
| E | 6.000 | 6.200 | 0.236 | 0.244 |
| e | 2.186 | 2.386 | 0.086 | 0.094 |
| L | 9.800 | 10.400 | 0.386 | 0.409 |
| L1 | 2.900 TYP. | | 0.114 TYP. | |
| L2 | 1.400 | 1.700 | 0.055 | 0.067 |
| L3 | 1.600 TYP. | | 0.063 TYP. | |
| L4 | 0.600 | 1.000 | 0.024 | 0.039 |
| Φ | 1.100 | 1.300 | 0.043 | 0.051 |
| θ | 0° | 8° | 0° | 8° |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| V | 5.350 TYP. | | 0.211 TYP. | |

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