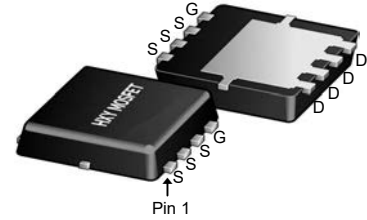




Description

The RJK0365DPA uses advanced trench technology to provide excellent $R_{DS(ON)}$, 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.



DFN5X6-8L

General Features

$V_{DS} = 30V$ $I_D = 50A$

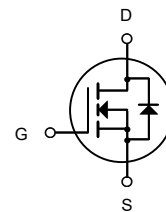
$R_{DS(ON)} < 8.5m\Omega$ $V_{GS} = 10V$

Application

Battery protection

Load switch

Uninterruptible power supply



N-Channel MOSFET

Package Marking and Ordering Information

| Product ID | Pack | Brand | Qty(PCS) |
|------------|-----------|------------|----------|
| RJK0365DPA | DFN5X6-8L | HXY MOSFET | 5000 |

Absolute Maximum Ratings ($T_c=25^\circ C$ unless otherwise noted)

| Symbol | Parameter | Rating | Units |
|-----------------------|--|------------|--------------|
| V_{DS} | Drain-Source Voltage | 30 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| $I_D@T_c=25^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 60 | A |
| $I_D@T_c=100^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V^1$ | 38 | A |
| I_{DM} | Pulsed Drain Current ² | 200 | A |
| EAS | Single Pulse Avalanche Energy ³ | 36 | mJ |
| I_{AS} | Avalanche Current | 50 | A |
| $P_D@T_c=25^\circ C$ | Total Power Dissipation ⁴ | 31 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ C$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |
| $R_{\theta JA}$ | Thermal Resistance Junction-Ambient ¹ | 62 | $^\circ C/W$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-Case ¹ | 27 | $^\circ C/W$ |

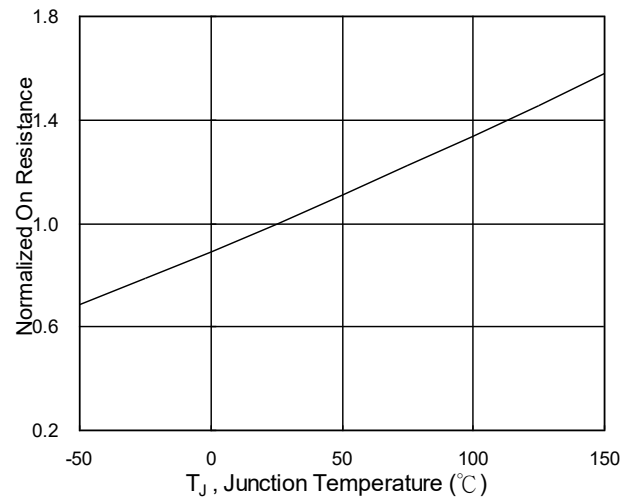
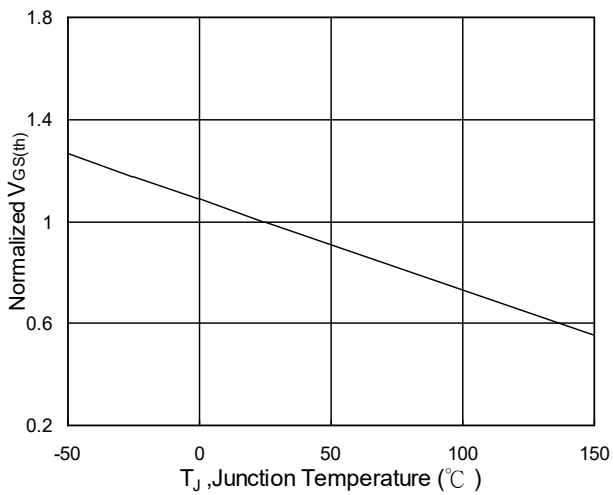
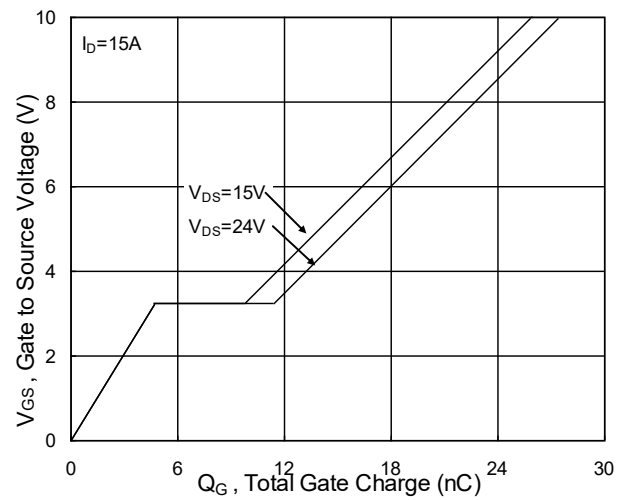
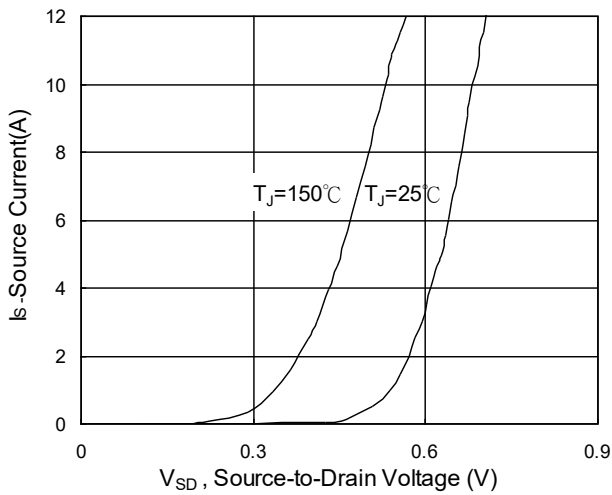
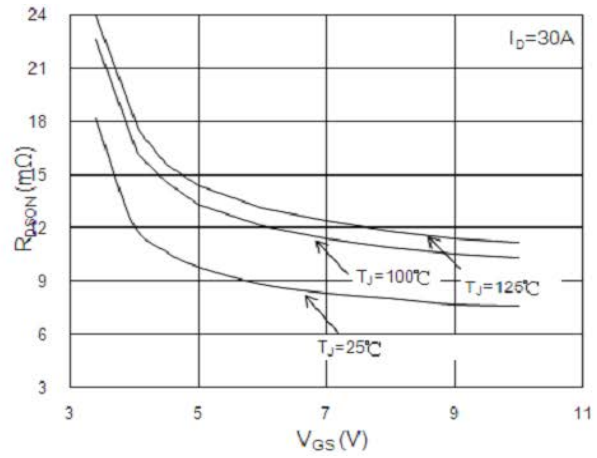
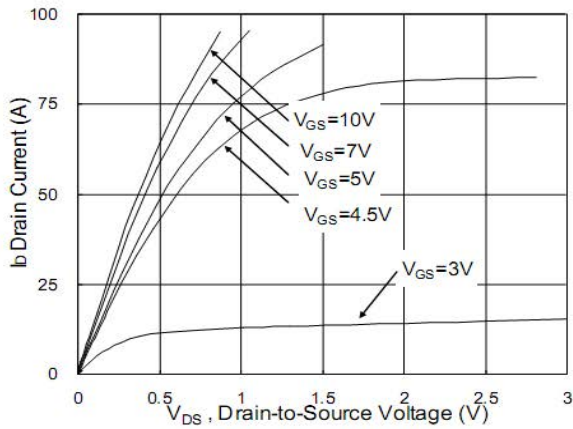


Electrical Characteristics (T_J=25 °C, unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---------------------------|---|--|---|------|------|-------|
| BV_{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250 μA | 30 | --- | --- | V |
| I_{DSS} | Zero Gate Voltage Drain Current | V _{GS} =0V, V _{DS} =24V | --- | --- | 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 =250 μA | 1.2 | 1.5 | 2.5 | V |
| R_{DS(on)} | Drain-Source On Resistance ² | V _{GS} =10V, I _D =30A | --- | 6.5 | 8.5 | mΩ |
| | | V _{GS} =4.5V, I _D =15A | --- | 11 | 14 | |
| G_{FS} | Forward Transconductance | V _{DS} =5V, I _D =30A | --- | 38 | --- | S |
| C_{iss} | Input Capacitance | V _{DS} =15V, V _{GS} =0V, f=1MHz | --- | 1317 | 1844 | pF |
| C_{OSS} | Output Capacitance | | --- | 163 | 228 | |
| C_{rSS} | Reverse Transfer Capacitance | | --- | 131 | 183 | |
| t_{d(on)} | Turn-On Delay Time | V _{DD} =15V, I _D =15A, R _L =Ω V _{GS} =15V, R _G =3.3Ω | --- | 4.6 | 9.2 | ns |
| t_r | Rise Time | | --- | 12.2 | 22 | ns |
| t_{d(off)} | Turn-Off Delay Time | | --- | 26.6 | 53 | ns |
| t_f | Fall Time | | --- | 8 | 16 | ns |
| Q_g | Total Gate Charge | | V _{GS} =4.5V, V _{DS} =15V, I _D =15A | --- | 21 | 17.6 |
| Q_{gs} | Gate-Source Charge | --- | | 2.35 | 5.9 | nC |
| Q_{gd} | Gate-Drain "Miller" Charge | --- | | 5.9 | 7.1 | nC |
| V_{SD} | Source-Drain Diode Forward Voltage ² | V _{GS} =0V, I _S =1A | --- | --- | 1 | V |
| I_S | Continuous Source Current ^{1,5} | V _G =V _D =0V, Force Current | --- | --- | 58 | A |
| I_{SM} | Pulsed Source Current ^{2,5} | | --- | --- | 115 | A |
| t_{rr} | Reverse Recovery Time | I _F =30A, di/dt=100A/μs, T _J =25°C | --- | 9.2 | --- | |
| Q_{rr} | Reverse Recovery Charge | | --- | 2 | --- | |



Typical Characteristics



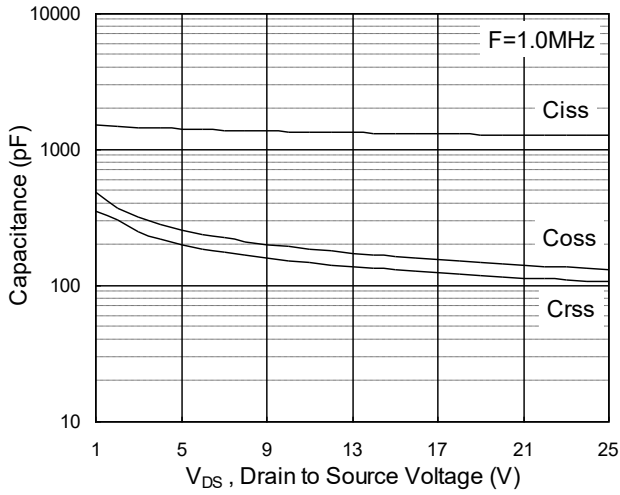


Fig.7 Capacitance

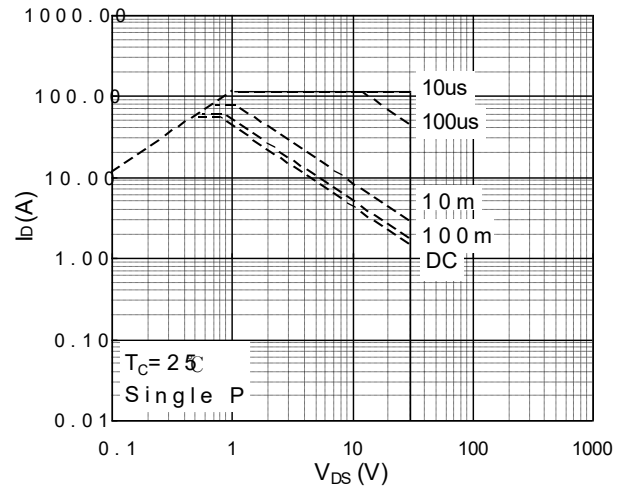


Fig.8 Safe Operating Area

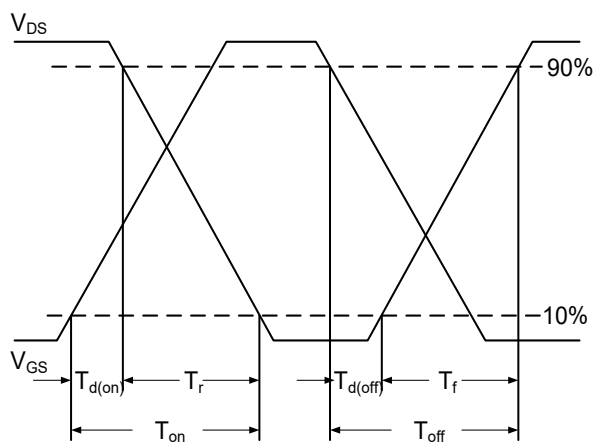
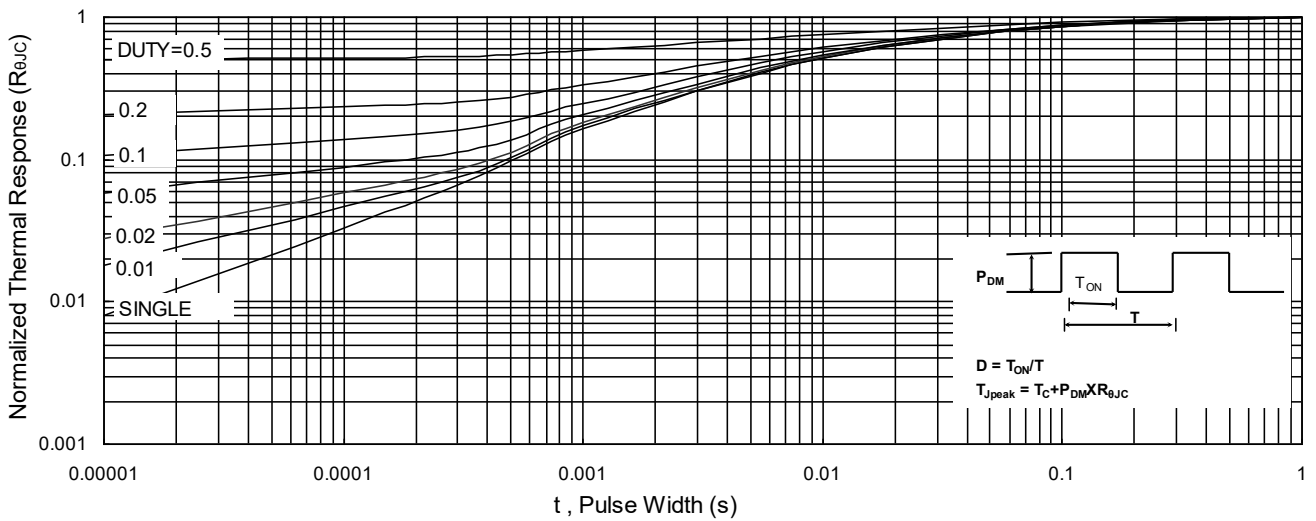
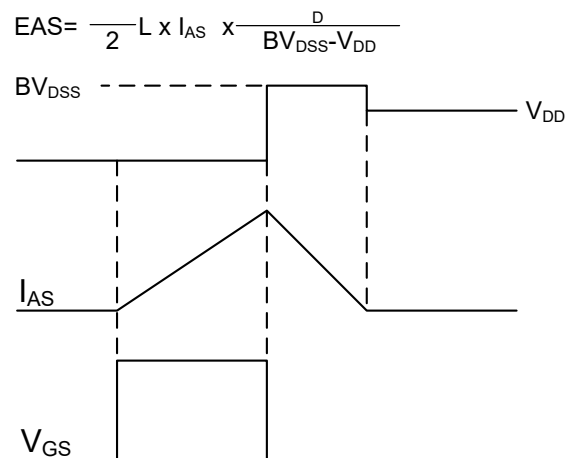
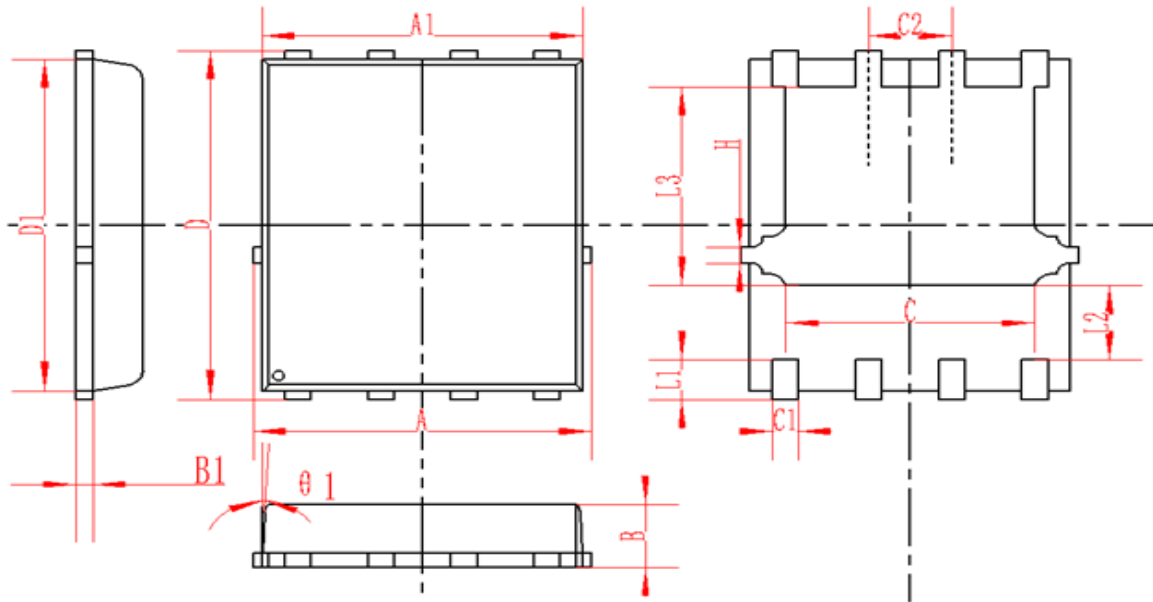


Fig.10 Switching Time Waveform





DFN5X6-8L Package Information



| SYMBOL | MM | | | INCH | | |
|------------|----------|------|-------|----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 4.95 | 5 | 5.05 | 0.195 | 0.197 | 0.199 |
| A1 | 4.82 | 4.9 | 4.98 | 0.190 | 0.193 | 0.196 |
| D | 5.98 | 6 | 6.02 | 0.235 | 0.236 | 0.237 |
| D1 | 5.67 | 5.75 | 5.83 | 0.223 | 0.226 | 0.230 |
| B | 0.9 | 0.95 | 1 | 0.035 | 0.037 | 0.039 |
| B1 | 0.254REF | | | 0.010REF | | |
| C | 3.95 | 4 | 4.05 | 0.156 | 0.157 | 0.159 |
| C1 | 0.35 | 0.4 | 0.45 | 0.014 | 0.016 | 0.018 |
| C2 | 1.27TYP | | | 0.5TYP | | |
| $\theta 1$ | 8° | 10° | 12° | 8° | 10° | 12° |
| L1 | 0.63 | 0.64 | 0.65 | 0.025 | 0.025 | 0.026 |
| L2 | 1.2 | 1.3 | 1.4 | 0.047 | 0.051 | 0.055 |
| L3 | 3.415 | 3.42 | 3.425 | 0.134 | 0.135 | 0.135 |
| H | 0.24 | 0.25 | 0.26 | 0.009 | 0.010 | 0.010 |



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