



- ★ Super Low Gate Charge
- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary

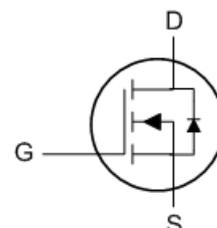
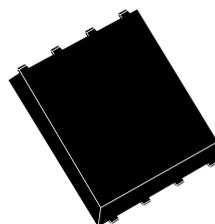
| BVDSS | RDSON | ID |
|-------|-------|-----|
| 60V | 6mΩ | 80A |

Description

The JH80N06F is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH80N06F meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

PDFN5X6 Pin Configuration



Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

| Symbol | Parameter | Max. | Units |
|-----------------------------------|---|------------------------|-------|
| V _{DSS} | Drain-Source Voltage | 60 | V |
| V _{GSS} | Gate-Source Voltage | ±25 | V |
| I _D | Continuous Drain Current | T _C = 25°C | 80 |
| | | T _C = 100°C | 52 |
| I _{DM} | Pulsed Drain Current ^{note1} | 320 | A |
| EAS | Single Pulsed Avalanche Energy ^{note2} | 169 | mJ |
| P _D | Power Dissipation | T _C = 25°C | 108 |
| R _{θJC} | Thermal Resistance, Junction to Case | 1.4 | °C/W |
| T _J , T _{STG} | Operating and Storage Temperature Range | -55 to +175 | °C |

Electrical Characteristics (T_J=25°C unless otherwise specified)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|---|--|------|------|------|-------|
| Off Characteristic | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250μA | 60 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} =60V, V _{GS} =0V, | - | - | 1.0 | μA |
| I _{GSS} | Gate to Body Leakage Current | V _{DS} =0V, V _{GS} =±20V | - | - | ±100 | nA |
| On Characteristics | | | | | | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250μA | 2 | 3 | 4 | V |
| R _{DS(on)} | Static Drain-Source on-Resistance <small>note3</small> | V _{GS} =10V, I _D = | - | 6 | 7 | |
| Dynamic Characteristics | | | | | | |
| C _{iss} | Input Capacitance | V _{DS} =30V, V _{GS} =0V, f=1.0MHz | - | 4136 | - | pF |
| C _{oss} | Output Capacitance | | - | 286 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 257 | - | pF |
| Q _g | Total Gate Charge | V _{DS} =30V, I _D =30A, V _{GS} =10V | - | 90 | - | nC |
| Q _{gs} | Gate-Source Charge | | - | 9 | - | nC |
| Q _{gd} | Gate-Drain("Miller") Charge | | - | 18 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn-on Delay Time | V _{DS} =30V, I _D =30A, R _G =1.8Ω, V _{GS} =10V | - | 9 | - | ns |
| t _r | Turn-on Rise Time | | - | 7 | - | ns |
| t _{d(off)} | Turn-off Delay Time | | - | 40 | - | ns |
| t _f | Turn-off Fall Time | | - | 15 | - | ns |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| I _S | Maximum Continuous Drain to Source Diode Forward Current | | - | - | 80 | A |
| I _{SM} | Maximum Pulsed Drain to Source Diode Forward Current | | - | - | 320 | A |
| V _{SD} | Drain to Source Diode Forward Voltage | V _{GS} =0V, I _S =30A | - | - | 1.2 | V |
| t _{rr} | Body Diode Reverse Recovery Time | I _F =30A, di/dt=100A/μs | - | 33 | - | ns |
| Q _{rr} | Body Diode Reverse Recovery Charge | | - | 46 | - | nC |

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition : T_J=25°C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=26A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

Figure 1: Output Characteristics

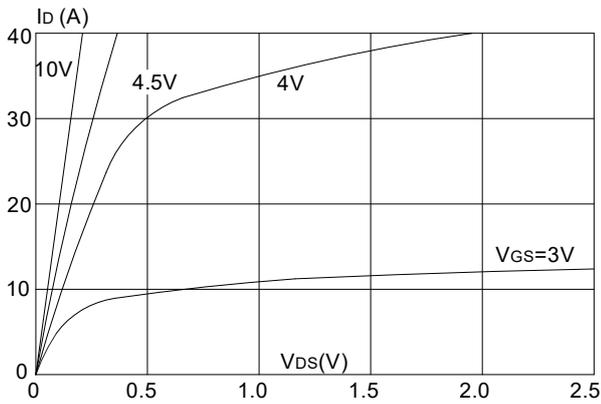


Figure 2: Typical Transfer Characteristics

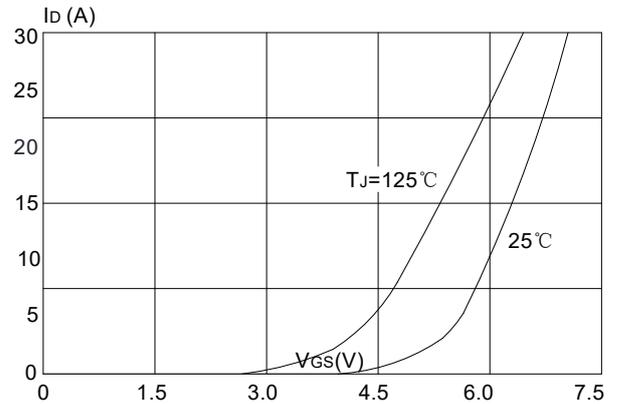


Figure 3: On-resistance vs. Drain Current

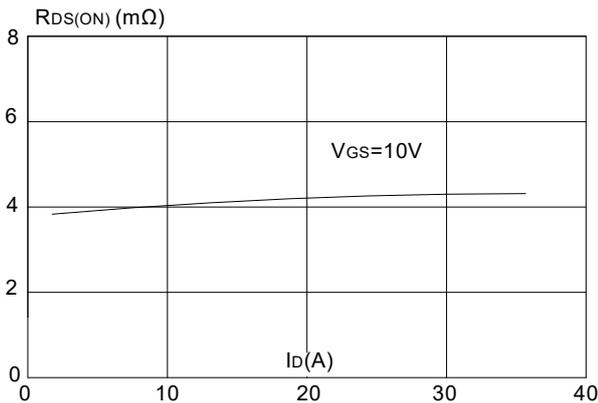


Figure 4: Body Diode Characteristics

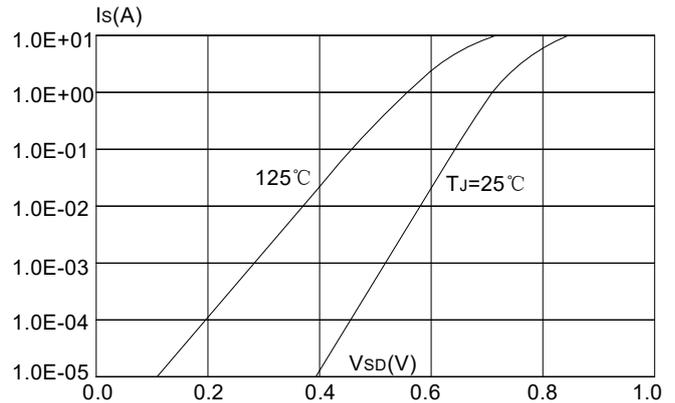


Figure 5: Gate Charge Characteristics

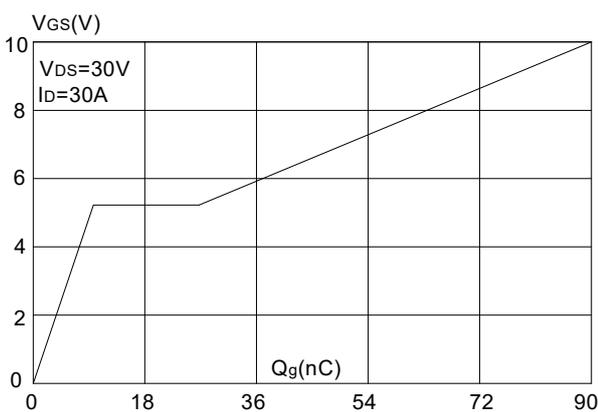


Figure 6: Capacitance Characteristics

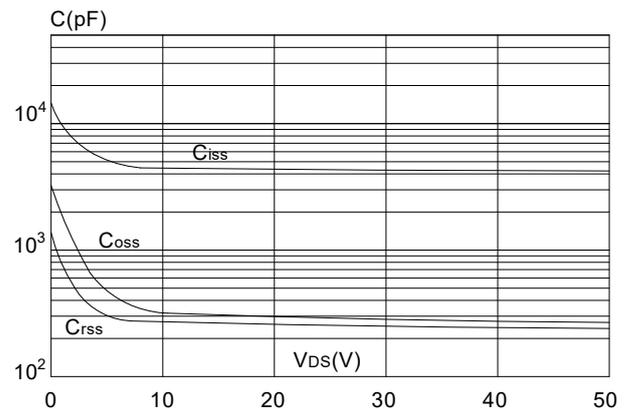


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

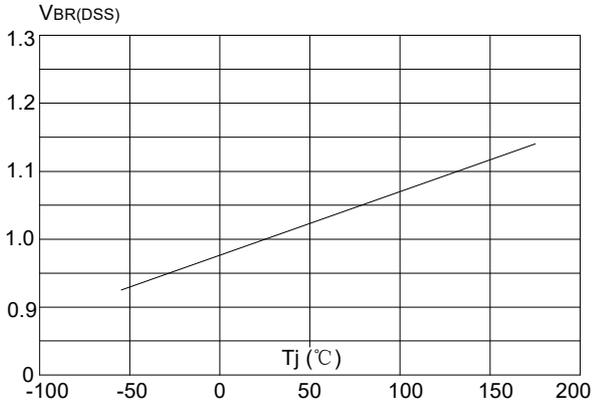


Figure 8: Normalized on Resistance vs. Junction Temperature

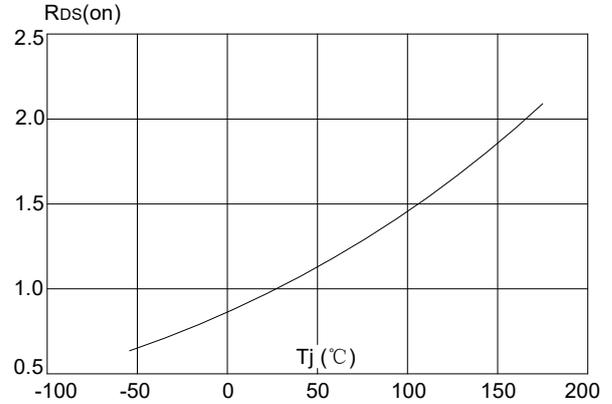


Figure 9: Maximum Safe Operating Area

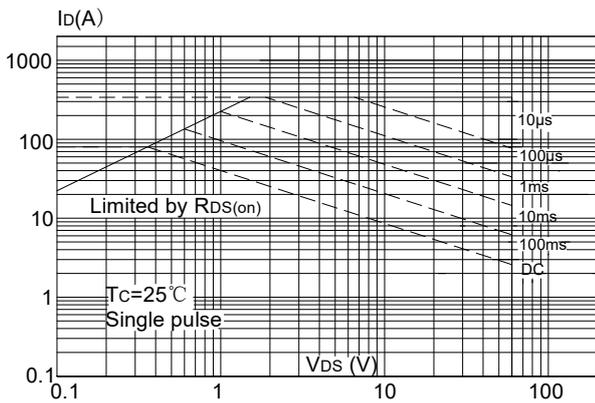


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

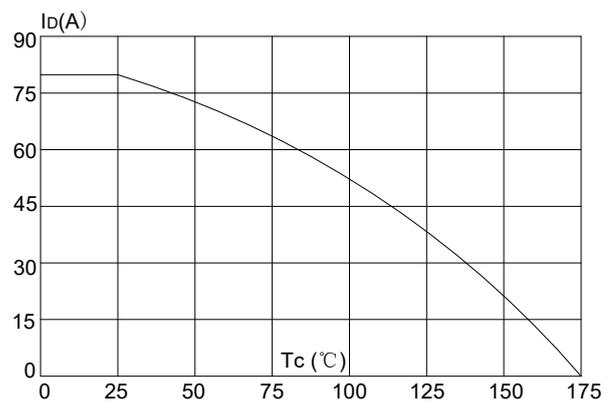
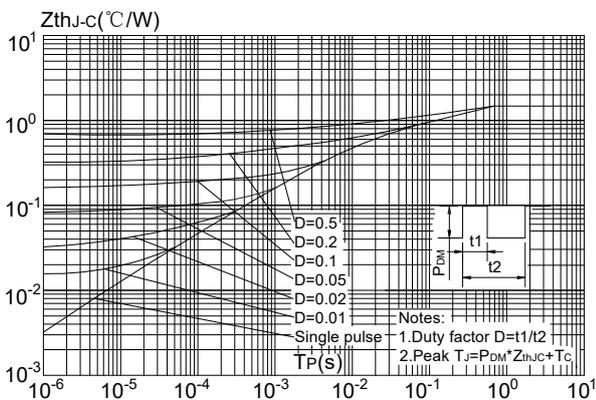
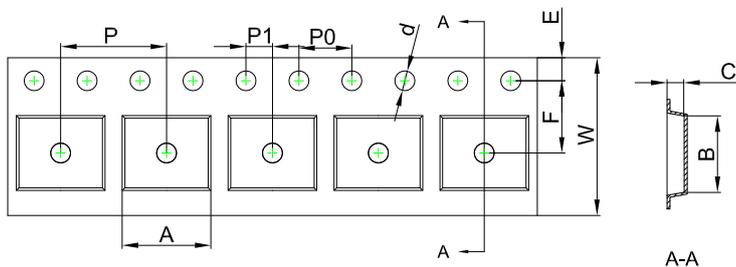


Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



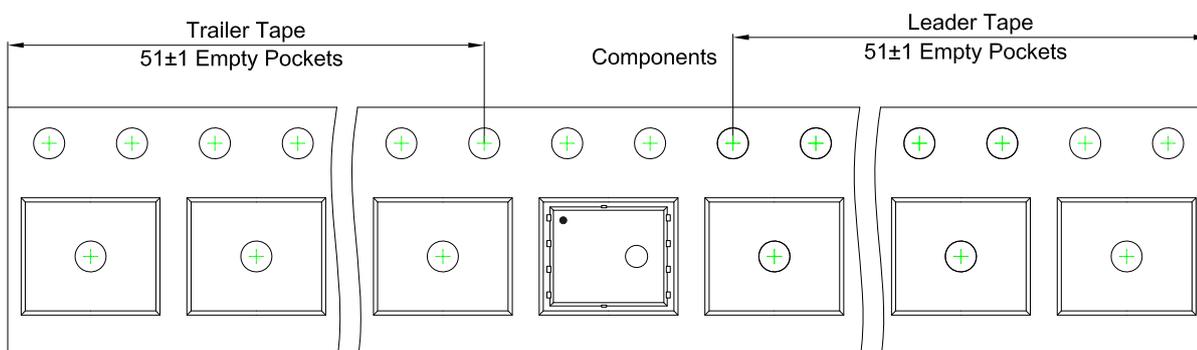
PDFN5×6 Tape and Reel

PDFN5×6 Embossed Carrier Tape

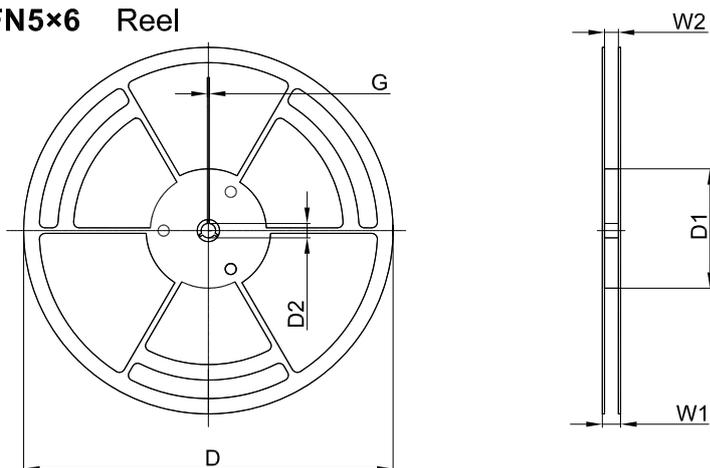


| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|-------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| PDFN5×6 | 6.30 | 5.30 | 1.10 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |

PDFN5×6 Tape Leader and Trailer

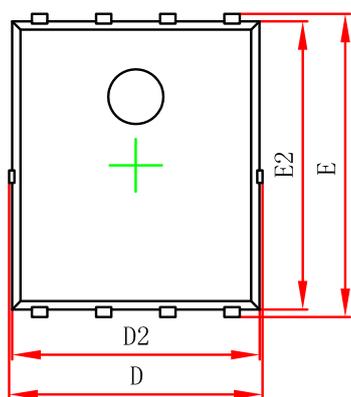


PDFN5×6 Reel

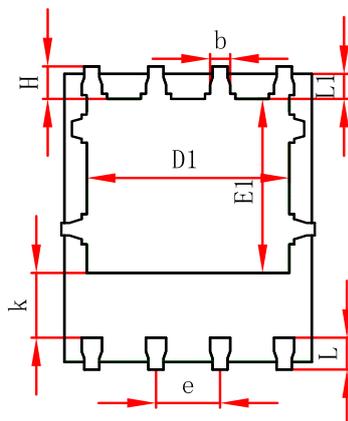


| Dimensions are in millimeter | | | | | | |
|------------------------------|---------|--------|-------|------|-------|-------|
| Reel Option | D | D1 | D2 | G | W1 | W2 |
| 13" Dia | Ø330.00 | 100.00 | 13.00 | 1.90 | 17.60 | 12.40 |

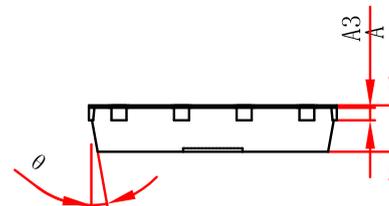
| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) |
|-----------|-----------|-----------|--------------|------------|-----------------|
| 5,000 pcs | 13 inch | 5,000 pcs | 340×336×29 | 50,000 pcs | 353×346×365 |



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.000 | 0.035 | 0.039 |
| A3 | 0.254REF. | | 0.010REF. | |
| D | 4.944 | 5.096 | 0.195 | 0.201 |
| E | 5.974 | 6.126 | 0.235 | 0.241 |
| D1 | 3.910 | 4.110 | 0.154 | 0.162 |
| E1 | 3.375 | 3.575 | 0.133 | 0.141 |
| D2 | 4.824 | 4.976 | 0.190 | 0.196 |
| E2 | 5.674 | 5.826 | 0.223 | 0.229 |
| k | 1.190 | 1.390 | 0.047 | 0.055 |
| b | 0.350 | 0.450 | 0.014 | 0.018 |
| e | 1.270TYP. | | 0.050TYP. | |
| L | 0.559 | 0.711 | 0.022 | 0.028 |
| L1 | 0.424 | 0.576 | 0.017 | 0.023 |
| H | 0.574 | 0.726 | 0.023 | 0.029 |
| θ | 10° | 12° | 10° | 12° |

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