

DFNWB3×2-08L-B Power Management MOSFETS-Schottky

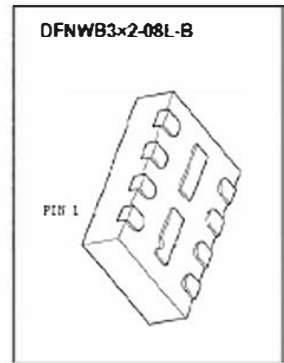
CJHD4P02F P-channel MOSFET and Schottky Barrier Diode

FEATURES

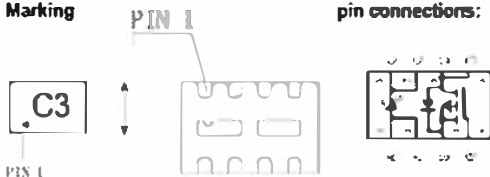
- Featuring a MOSFET and Schottky Diode
- Independent Pinout to Each Device to Ease Circuit Design
- Ultra Low V_f Schottky

Applications

- Li-Ion Battery Charging
- High Side DC-DC Conversion Circuits
- High Side Drive for Small Brushless DC Motors
- Power Management in Portable, Battery Powered Products



Marking



MOSFET MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|-----------------|---|----------|--------------------|
| V_{DS} | Drain-Source voltage | -20 | V |
| V_{GS} | Gate-Source Voltage | ± 12 | V |
| I_D | Continuous Drain Current | -2.1 | A |
| I_{DM} | Drain Current-Pulsed | -7 | A |
| P_D | Power Dissipation | 1.1 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55-150 | $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 110 | $^\circ\text{C/W}$ |

SCHOTTKY DIODE MAXIMUM RATINGS ($T_a= 25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Limits | Unit |
|-----------|-----------------------------------|--------|------|
| V_{RRM} | Peak repetitive reverse voltage | 20 | V |
| V_R | DC Blocking voltage | 20 | V |
| I_F | Average rectified forward current | 2.2 | A |

MOSFET ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|--------------|---|------|-----|-----------|------------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DS} | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -16V, V_{GS} = 0V$ | | | -1 | μA |
| Gate-Source leakage current | I_{GSS} | $V_{GS} = \pm 12V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{GS} = V_{DS}, I_D = -250\mu A$ | -0.6 | | -1.2 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -2.1A$ | | | 155 | m Ω |
| | | $V_{GS} = -2.5V, I_D = -1.7A$ | | | 240 | m Ω |
| Forward Transconductance | g_{FS} | $V_{DS} = -10V, I_D = -1.7A$ | | 5.0 | | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -10V, V_{GS} = 0V,$ $f = 1.0 \text{ MHz}$ | | | 300 | pF |
| Output Capacitance | C_{oss} | | | | 150 | pF |
| Reverse Transfer Capacitance | C_{rss} | | | | 50 | pF |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS} = -4.5V, V_{DD} = -16V,$ $I_D = -2.1A, R_G = 2.5\Omega,$ | | | 12 | ns |
| Turn-On Rise Time | t_r | | | | 25 | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | | | 50 | ns |
| Turn-Off Fall Time | t_f | | | | 40 | ns |
| Total Gate Charge | $Q_{G(TOT)}$ | | | | 3.0 | 6.0 |
| Threshold gate charge | $Q_{G(TH)}$ | $V_{DS} = -10V, I_D = -2.1A,$ | | | 0.2 | nC |
| Gate-Source Charge | Q_{GS} | $V_{GS} = -4.5V$ | | | 0.5 | nC |
| Gate-Drain Charge | Q_{GD} | | | | 0.9 | nC |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| Forward Diode Voltage | V_{SD} | $V_{GS} = 0V, I_S = -2.1A$ | | | -1.15 | V |

SCHOTTKY DIODE ELECTRICAL CHARACTERISTICS (Ta = 25°C unless otherwise noted)

| Parameter | Symbol | Min | Typ | Max | Unit | Conditions |
|-----------------|----------|-----|-------|-------|---------|--------------|
| Forward voltage | V_{F1} | | 0.425 | | V | $I_F = 0.1A$ |
| | V_{F2} | | 0.480 | | | $I_F = 0.5A$ |
| | V_{F3} | | | 0.575 | | $I_F = 1A$ |
| Reverse current | I_{R1} | | | 1 | μA | $V_R = 10V$ |
| | I_{R2} | | | 5 | μA | $V_R = 20V$ |