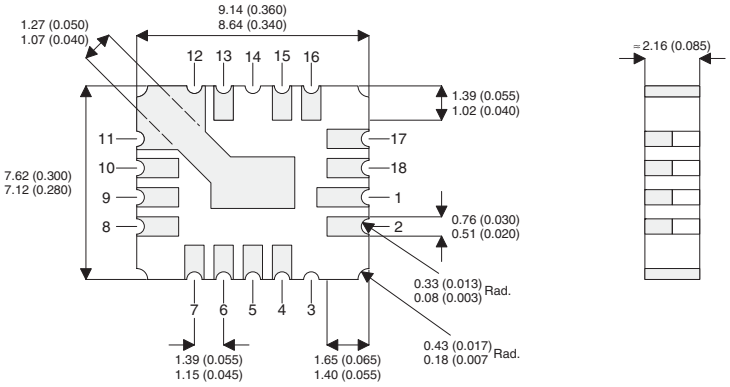
# 2N6800LCC4

## MECHANICAL DATA

Dimensions in mm (inches)




## LCC4 CERAMIC SURFACE MOUNT PACKAGE

| | |
|---|---|
| GATE | PINS 4,5 |
| DRAIN | PINS 1,2,15,16,17,18 |
| SOURCE | PINS 6,7,8,9,10,11,12,13 |

# N–CHANNEL ENHANCEMENT MODE HIGH VOLTAGE POWER MOSFETS

| | |
|---|---|
| $BV_{DSS}$ | 400V |
| ID | 3.0A |
| $R_{DS(on)}$ | 1.0Ω |

## FEATURES

- Dynamic dv/dt Rating
- Simple Drive requirements
- Ease of Paralleling
- Hermetic Ceramic Surface Mount Package

## ABSOLUTE MAXIMUM RATINGS $T_{CASE}$ = 25°C unless otherwise stated

| | | | |
|---|---|---|---|
| $V_{DSS}$ | Drain - Source Voltage | | 400V |
| $I_D$ | Drain Current | - Continuous ($V_{GS}$ = 10V, $T_C$ = 25°C) | 3A |
| | | - Continuous ($V_{GS}$ = 10V, $T_C$ = 100°C) | 2A |
| $I_{DM}$ | Drain Current | - Pulsed[2] | 12A |
| $V_{GSS}$ | Gate - Source Voltage | | ±20V |
| $P_{tot}$ | Total Power Dissipation at $T_{case}$ ≤ 25°C | | 25W |
| | De-rate Linearly above 25°C | | 0.20W/°C |
| $T_j$,$T_{stg}$ | Operating and Storage Junction Temperature Range | | -55 to +150°C |
| $R_{thj-mb}$ | Thermal Resistance Junction – Mounting Base | | 5.0°C/W |
| dv/dt | Peak Diode Recovery[3] | | 4V/ns |

NOTES:
1) Repetitive Rating: Pulse Width limited by maximum junction temperature.
2) Pulse Test: Pulse Width ≤ 380μS, Duty Cycle, δ 2%
3) $T_J$ ≤ 150°C, $V_{DD}$ ≤ $BV_{DSS}$, Suggested $R_G$ = 7.5 , $I_{SD}$ ≤ 1.5A, di/dt ≤ 50A/μs



**Semelab plc.** Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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## STATIC ELECTRICAL RATINGS ($T_{case}$=25°C unless otherwise stated)

| Symbol | Parameter | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $BV_{DSS}$ | Drain – Source Breakdown Voltage | $V_{GS}$ = 0V | $I_D$ = 250µA | 400 | - | - | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$ = 320V | $V_{GS}$ = 0V | - | - | 25 | µA |
| | | | $T_C$ = 125°C | - | - | 250 | |
| $I_{GSS}$ | Gate – Source Leakage Current | $V_{GS}$ = ±20V | $V_{DS}$ = 0V | - | - | ±100 | nA |
| $V_{GS(TH)}$ | Gate Threshold Voltage | $V_{DS}$ ≥ $V_{GS}$ | $I_D$ = 250µA | 2.0 | - | 4.0 | V |
| | | | $T_C$ = 125°C | 1.0 | - | - | |
| | | | $T_C$ = -55°C | - | - | 5.0 | |
| $R_{DS(ON)}$ | Drain – Source On State Resistance[3] | $V_{GS}$ = 10V | $I_D$ = 2A | - | - | 1.0 | Ω |
| | | | $T_C$ = 125°C | - | - | 2.40 | |
| | | $V_{GS}$ = 10V | $I_D$ = 3A | - | - | 1.15 | |
| $g_{FS}$ | Forward Transconductance[3] | $V_{DS}$ ≥ 15V | $I_{DS}$ = 2A | 2 | - | - | S |

## DYNAMIC CHARACTERISTICS

| | | | | | | |
|---|---|---|---|---|---|---|
| $C_{iss}$ | Input Capacitance | $V_{DS}$ = 25V<br>f = 1.0MHz | $V_{GS}$ = 0V | - | 620 | - | pF |
| $C_{oss}$ | Output Capacitance | | | - | 200 | - | |
| $C_{rss}$ | Reverse Transfer Capacitance | | | - | 75 | - | |
| $Q_g$ | Total Gate Charge[2] | $V_{DS}$ = 200V<br>$V_{GS}$ = 10V | $I_D$ = 3A | 19.1 | - | 33 | nC |
| $Q_{gs}$ | Gate – Source Charge[2] | | | 1.0 | - | 5.8 | |
| $Q_{gd}$ | Gate – Drain Charge[2] | | | 6.7 | - | 19.9 | |
| $T_{d(on)}$ | Turn-On Delay | $V_{DD}$ = 200V<br>$R_G$ = 7.5Ω | $I_D$ = 3A<br>$V_{GS}$ = 10V | - | - | 30 | ns |
| $t_r$ | Rise Time | | | - | - | 35 | |
| $T_{d(off)}$ | Turn-Off Delay Time | | | - | - | 55 | |
| $t_f$ | Fall Time | | | - | - | 35 | |

## SOURCE – DRAIN DIODE RATINGS AND CHARACTERISTICS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $I_S$ | Continuous Source Current (MAX) | | | - | - | 3 | A |
| $I_{SM}$ | Pulsed Source Current (MAX)[1] | | | - | - | 12 | |
| $V_{SD}$ | Diode Forward Voltage[2] | $V_{GS}$ = 0V | $I_s$ = 3A | - | - | 1.4 | V |
| $t_{rr}$ | Reverse Recovery Time | $V_{GS}$ = 0V<br>di/dt=100A/µs | $I_s$ = 3A<br>$V_{DD}$ ≤ 50V | - | - | 700 | ns |
| $Q_{rr}$ | Reverse Recovery Charge[2] | | | - | - | 6.2 | µC |



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