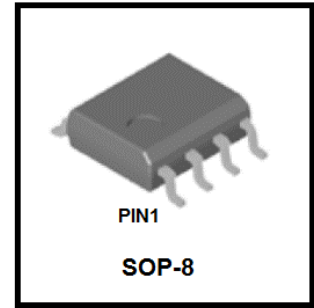


LNP4606T1G

P & N-Channel 30-V (D-S) MOSFET

1. FEATURES

- Low RDS(on) provides higher efficiency and extends battery life.
- Low thermal impedance.
- Fast switching speed.
- High performance trench technology
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

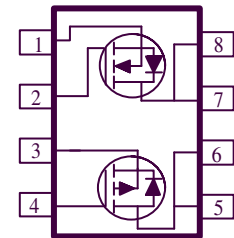


2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives

3. ORDERING INFORMATION

| Device | Marking | Shipping |
|------------|---------|----------------|
| LNP4606T1G | 4606 | 4000/Tape&Reel |



4. MAXIMUM RATINGS(Ta = 25°C)

| Parameter | | Symbol | N-Channel | P-Channel | Unit |
|--|----------|-----------|-----------|-----------|------|
| Drain-to-Source Voltage | | VDS | 30 | 30 | V |
| Gate-to-Source Voltage | | VGS | ±20 | ±20 | V |
| Continuous Drain Current(Note 1) | TA =25°C | ID | 7 | -6 | A |
| | TA =70°C | | 4.8 | -4.5 | |
| Pulsed Drain Current (Note 2) | | IDM | 28 | -25 | A |
| Power Dissipation(Note 1) | TA =25°C | PD | 2.1 | 2.1 | W |
| | TA =70°C | | 1.3 | 1.3 | |
| Operating Junction and Storage Temperature Range | | TJ , TSTG | -55 ~+150 | -55 ~+150 | °C |

5. THERMAL CHARACTERISTICS

| Parameter | | Symbol | Limits | Unit |
|--|--------------|--------|--------|------|
| Thermal Resistance,Junction-to-Ambient(Note 1) | t ≤10 s | RθJA | 62.5 | °C/W |
| | Steady State | | 110 | °C/W |

- 1.Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.
- 2.Pulse width limited by maximum junction temperature

6. P-ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Characteristic | Symbol | Min. | Typ. | Max. | Unit | |
|---|---|----------|----------|----------|------|----|
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage (VGS = 0, ID = -250μA) | VBRDSS | -30 | - | - | V | |
| Gate-Source Threshold Voltage (VDS =VGS , ID =-250μA) | VGS(th) | -1 | - | -3 | V | |
| Gate-Body Leakage Current (VDS =0V, VGS = ± 20V) | IGSS | - | - | ± 1 | uA | |
| Zero Gate Voltage Drain Current (VDS = -24 V, VGS = 0 V) | IDSS | - | - | -1 | μA | |
| Drain-Source On-Resistance(Note 3) (VGS = -10 V, ID = -5 A) (VGS = -4.5 V, ID = -4 A) | RDS(ON) | - | 45 55 | 52 75 | mΩ | |
| Diode Forward Voltage(Note 3) (IS = -1 A, VGS = 0 V) | VSD | - | -0.77 | -1 | V | |
| DYNAMIC | | | | | | |
| Total Gate Charge | (VDS = -15 V, VGS = -10 V, ID = -4 A) | Qg(10V) | - | 18.7 | - | nC |
| Total Gate Charge | | Qg(4.5V) | - | 9.4 | - | |
| Gate-Source Charge | | Qgs | - | 2.7 | - | |
| Gate-Drain Charge | | Qgd | - | 3.3 | - | |
| Turn-On Delay Time | (VDS = -15 V, VGS=-10V, RL= 5.2 Ω, RGEN=3.8 Ω) | td(on) | - | 39 | - | ns |
| Rise Time | | tr | - | 21 | - | |
| Turn-Off Delay Time | | td(off) | - | 48 | - | |
| Fall Time | | tf | - | 7.5 | - | |
| Input Capacitance | (VDS = -15 V, VGS = 0 V, f = 1 MHz) | Ciss | - | 664 | - | pF |
| Output Capacitance | | Coss | - | 90 | - | |
| Reverse Transfer Capacitance | | Crss | - | 81 | - | |
| Gate Resistance (VDS=0V ,VGS=0V, f=1.0MHz) | Rg | - | 6.9 | - | Ω | |

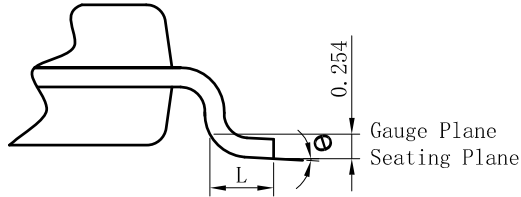
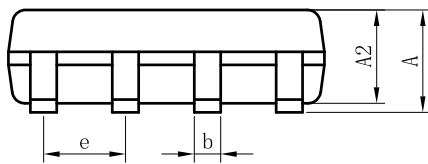
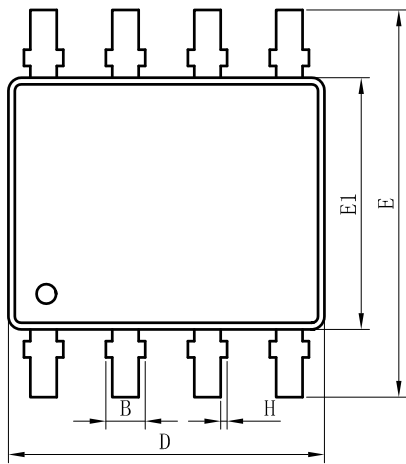
6. N-ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Characteristic | Symbol | Min. | Typ. | Max. | Unit | |
|---|---|----------|----------|----------|------|----|
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA) | VBRDSS | 30 | - | - | V | |
| Gate-Source Threshold Voltage (VDS =VGS , ID = 250μA) | VGS(th) | 1 | - | 3 | V | |
| Gate-Body Leakage Current (VDS =0V, VGS =± 16V) | IGSS | - | - | ± 10 | μA | |
| Zero Gate Voltage Drain Current (VDS = 30 V, VGS = 0 V) | IDSS | - | - | 1 | μA | |
| Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 6 A) (VGS = 4.5 V, ID = 5 A) | RDS(ON) | - | 26 36 | 34 52 | mΩ | |
| Diode Forward Voltage(Note 3) (IS = 1.7 A, VGS = 0 V) | VSD | - | 0.8 | 1.2 | V | |
| DYNAMIC | | | | | | |
| Total Gate Charge | (VDS = 15 V, VGS = 10 V, ID = 6.7 A) | Qg(10V) | - | 12 | - | nC |
| Total Gate Charge | | Qg(4.5V) | - | 5.7 | - | |
| Gate-Source Charge | | Qgs | - | 3 | - | |
| Gate-Drain Charge | | Qgd | - | 2 | - | |
| Turn-On Delay Time | (VDD = 15 V, RL= 15 Ω, ID= 1A, VGEN= 10V , RG = 6 Ω) | td(on) | - | 9.2 | - | ns |
| Rise Time | | tr | - | 13 | - | |
| Turn-Off Delay Time | | td(off) | - | 33 | - | |
| Fall Time | | tf | - | 3.7 | - | |
| Input Capacitance | (VDS = 15 V, VGS = 0 V, f = 1 MHz) | Ciss | - | 370 | - | pF |
| Output Capacitance | | Coss | - | 68 | - | |
| Reverse Transfer Capacitance | | Crss | - | 21 | - | |
| Gate Resistance (VDS=0V ,VGS=0V, f=1.0MHz) | Rg | - | TBD | - | Ω | |

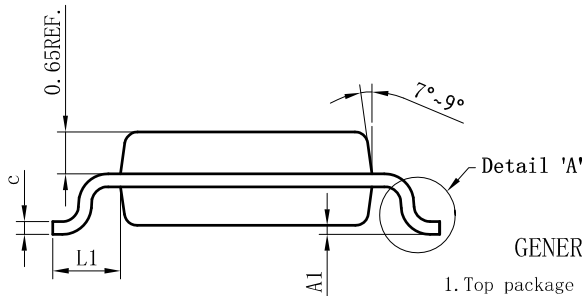
3. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%

7. OUTLINE AND DIMENSIONS

SOP8



Detail 'A'

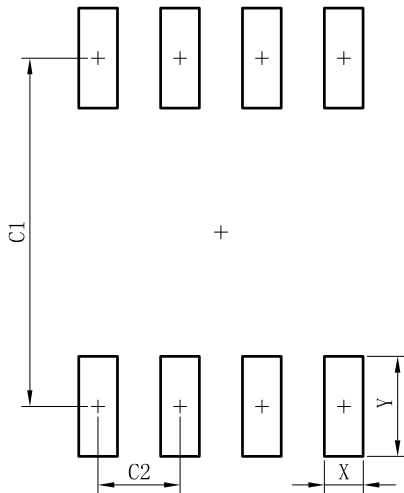


| SOP8 | | | |
|----------------------|---------|------|------|
| DIM | MIN | NOR | MAX |
| A | - | - | 1.75 |
| A1 | 0.10 | 0.15 | 0.20 |
| A2 | 1.35 | 1.45 | 1.55 |
| b | 0.33 | 0.42 | 0.51 |
| c | 0.15 | 0.22 | 0.29 |
| D | 4.77 | 4.90 | 5.03 |
| E | 5.80 | 6.00 | 6.20 |
| E1 | 3.80 | 3.90 | 4.00 |
| e | 1.27BSC | | |
| L | 0.46 | 0.66 | 0.86 |
| L1 | 0.85 | 1.05 | 1.25 |
| θ | 0° | 5° | 8° |
| B | - | - | 0.55 |
| H | 0 | 0.05 | 0.10 |
| All Dimensions in mm | | | |

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um
4. Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs. Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10 mm Per Side.
5. Dimension "b" Does Not Include Dambar Protrusion.

8. SOLDERING FOOTPRINT



| SOP8 | |
|------|------|
| DIM | (mm) |
| X | 0.60 |
| Y | 1.55 |
| C1 | 5.40 |
| C2 | 1.27 |

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[EFC2J004NUZTDG](#) [FCAB21350L1](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [NTE2969](#) [NTE6400A](#) [DMC2700UDMQ-7](#)
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