

**L I****Product Summary**

The ZMP68304S combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ . Two P Channel MOSFET inside for dual DIE implication.

density Trench technology  
 $R_{DS(ON)}$  to minimize conductive loss

Dual DIE in one package

**F**

Power Management in Notebook Computer  
BLDC Motor driver

**T****P Channel Absolute Maximum Ratings  $T_c = 25$** 

| Parameter                          | Symbol         | Rating     | Unit |
|------------------------------------|----------------|------------|------|
| Drain-Source Voltage               | $V_{DS}$       | -30        | V    |
| Gate-Source Voltage                | $V_{GS}$       | $\pm 20$   | V    |
| Continuous Drain Current           | $I_{D@TC=25}$  | -5         | A    |
|                                    | $I_{D@TC=75}$  | -3.8       | A    |
|                                    | $I_{D@TC=100}$ | -3.2       | A    |
| Pulsed Drain Current               | $I_{DM}$       | -10        | A    |
| Total Power Dissipation( $TC=25$ ) | $P_D@TC=25$    | 3.6        | W    |
| Total Power Dissipation( $TA=25$ ) | $P_D@TA=25$    | 0.69       | W    |
| Operating Junction Temperature     | $T_J$          | -55 to 150 |      |
| Storage Temperature                | $T_{STG}$      | -55 to 150 |      |
| Single Pulse Avalanche Energy      | $E_{AS}$       | 25         | mJ   |

**Thermal resistance**

| Parameter                                    | Symbol     | Min. | Typ. | Max. | Unit          |
|--|------------|------|------|------|---------------|
| Thermal resistance, junction - case          | $R_{thJC}$ | -    | -    | 34   | $^{\circ}C/W$ |
| Thermal resistance, junction - ambient       | $R_{thJA}$ | -    | -    | 180  | $^{\circ}C/W$ |
| Soldering temperature, wavesoldering for 10s | $T_{sold}$ | -    | -    | 265  | $^{\circ}C$   |

**Electronic Characteristics**

| Parameter                         | Symbol       | Condition                      | Min. | Typ | Max. | Unit    |
|-----------------------------------|--------------|--------------------------------|------|-----|------|---------|
| Drain-Source Breakdown Voltage    | $BV_{DSS}$   | $V_{GS}=0V, I_D=-250\mu A$     | -30  |     |      | V       |
| Gate Threshold Voltage            | $V_{GS(TH)}$ | $V_{GS}=V_{DS}, I_D=-250\mu A$ | -1.2 |     | -2.5 | V       |
| Drain-Source Leakage Current      | $I_{DSS}$    | $V_{DS}=-30V, V_{GS}=0V$       |      |     | -1.0 | $\mu A$ |
| Gate- Source Leakage Current      | $I_{GSS}$    | $V_{GS}=\pm 12V, V_{DS}=0V$    |      |     | 100  | nA      |
| Static Drain-source On Resistance |              | $V_{GS}=-10V, I_D=-20A$        |      |     |      |         |
|                                   |              | $V_{GS}=-4.5V, I_D=-10A$       |      |     |      |         |
| Forward Transconductance          | $g_{FS}$     | $V_{DS}=-10V, I_D=-5A$         |      |     |      |         |
| Source-drain voltage              | $V_{SD}$     | $I_S=-20A$                     |      |     |      |         |

**H**

| Parameter                    | Symbol    | Condition  | Min. | Typ | Max. | Unit |
|------------------------------|-----------|------------|------|-----|------|------|
| Input capacitance            | $C_{iss}$ | $f = 1MHz$ | -    | 550 | -    | pF   |
| Output capacitance           | $C_{oss}$ |            | -    | 230 | -    |      |
| Reverse transfer capacitance | $C_{rss}$ |            | -    | 113 | -    |      |

**Gate Charge characteristics( $T_a = 25$  )**

| Parameter            | Symbol   | Condition      | Min. | Typ | Max. | Unit |
|----------------------|----------|----------------|------|-----|------|------|
| Total gate charge    | $Q_g$    | $V_{DD}=25V$   | -    | 10  | -    | nC   |
| Gate - Source charge | $Q_{gs}$ | $I_D = 2A$     | -    | 4   | -    |      |
| Gate - Drain charge  | $Q_{gd}$ | $V_{GS} = 10V$ | -    | 6   | -    |      |





