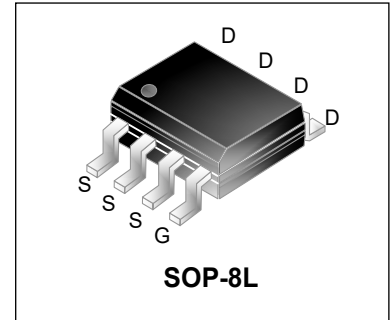


## P-Channel Enhancement MOSFET

### Features

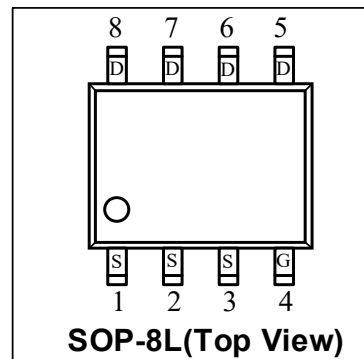
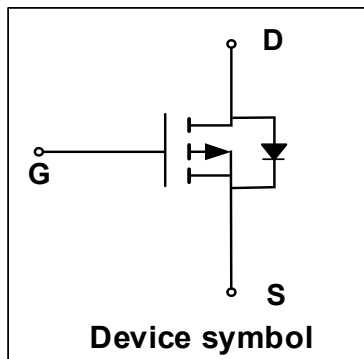
- Way-on Small Signal MOSFETs
- $V_{DS} = -30V$ ,  $I_D = -9.1A$   
 $R_{DS(on)} < 24m\Omega @ V_{GS} = -10V$   
 $R_{DS(on)} < 35m\Omega @ V_{GS} = -4.5V$
- Trench LV MOSFET Technology



### Mechanical Characteristics

- SOP-8L Package
- Marking : Making Code
- RoHS Compliant

### Schematic & PIN Configuration



### Absolute Maximum Rating ( $T_A=25^\circ C$ unless otherwise noted)

| Parameter                              | Symbol         | Value      | Unit       |
|--|----------------|------------|------------|
| Drain-Source breakdown voltage         | $V_{DS}$       | -30        | V          |
| Gate-Source voltage                    | $V_{GS}$       | $\pm 20$   | V          |
| Continuous Drain Current               | $I_D$          | -9.1       | A          |
| Pulsed Drain Current <sup>1</sup>      | $I_{DM}$       | -36        | A          |
| Power Dissipation                      | $P_D$          | 3.1        | W          |
| Junction and Storage Temperature Range | $T_J, T_{STG}$ | -55 to 150 | $^\circ C$ |

### Thermal Characteristics

| Parameter  | Symbol          | Value | Unit         |
|--|-----------------|-------|--------------|
| Thermal Resistance from Junction to Ambient <sup>2</sup> | $R_{\theta JA}$ | 40    | $^\circ C/W$ |

**Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

| Parameter                                    | Symbol               | Test Conditions  | Min. | Typ. | Max. | Unit |
|--|----------------------|--|------|------|------|------|
| <b>Static Characteristics</b>                |                      |  |      |      |      |      |
| Drain-Source Breakdown Voltage               | V <sub>(BR)DSS</sub> | V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA  | -30  | -    | -    | V    |
| Gate-body Leakage current                    | I <sub>GSS</sub>     | V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V   | -    | -    | ±100 | nA   |
| Zero Gate Voltage Drain Current              | I <sub>DSS</sub>     | V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V   | -    | -    | -1   | μA   |
| Gate-Threshold Voltage                       | V <sub>GS(th)</sub>  | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA                                    | -1.0 | -1.5 | -3.0 | V    |
| Drain-Source On-Resistance <sup>3</sup>      | R <sub>DS(on)</sub>  | V <sub>GS</sub> = -10V, I <sub>D</sub> = -9.1A   | -    | 17   | 24   | mΩ   |
|  |                      | V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -6.9A  | -    | 23   | 35   |      |
| <b>Dynamic Characteristics<sup>4</sup></b>   |                      |  |      |      |      |      |
| Input Capacitance                            | C <sub>iss</sub>     | V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V,<br>f = 1MHz                                      | -    | 1550 | -    | pF   |
| Output Capacitance                           | C <sub>oss</sub>     |  | -    | 200  | -    |      |
| Reverse Transfer Capacitance                 | C <sub>rss</sub>     |  | -    | 175  | -    |      |
| <b>Switching Characteristics<sup>4</sup></b> |                      |  |      |      |      |      |
| Total Gate Charge                            | Q <sub>g</sub>       | V <sub>GS</sub> = -10V, I <sub>D</sub> = -9.1A,<br>V <sub>DS</sub> = -15V                      | -    | 30   | -    | nC   |
| Gate-Source Charge                           | Q <sub>gs</sub>      |  | -    | 5.5  | -    |      |
| Gate-Drain Charge                            | Q <sub>gd</sub>      |  | -    | 8    | -    |      |
| Turn-On Delay Time                           | t <sub>d(on)</sub>   | V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V,<br>R <sub>G</sub> = 3Ω, I <sub>D</sub> = -9.1A | -    | 10   | -    | ns   |
| Rise Time                                    | t <sub>r</sub>       |  | -    | 15   | -    |      |
| Turn-Off Delay Time                          | t <sub>d(off)</sub>  |  | -    | 110  | -    |      |
| Fall Time                                    | t <sub>f</sub>       |  | -    | 70   | -    |      |
| <b>Drain-source diode characteristics</b>    |                      |  |      |      |      |      |
| Diode Forward Voltage <sup>3</sup>           | V <sub>SD</sub>      | I <sub>S</sub> = -1A, V <sub>GS</sub> = 0V   | -    | -    | -1.2 | V    |
| Continuous Source Current                    | I <sub>S</sub>       |  | -    | -    | -9.1 | A    |

**Notes:**

1. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C.
2. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

### Typical Characteristics

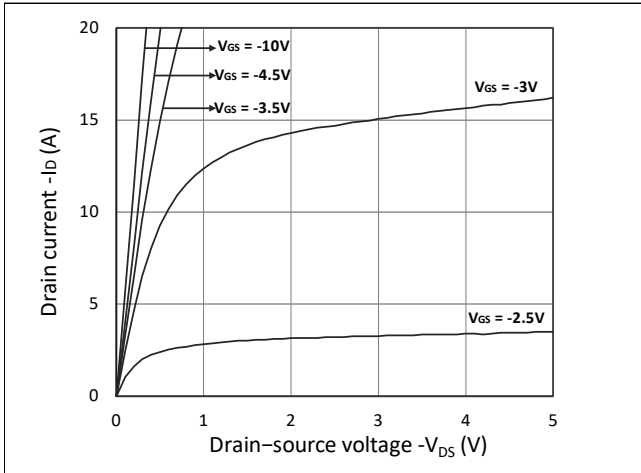


Figure 1. Output Characteristics

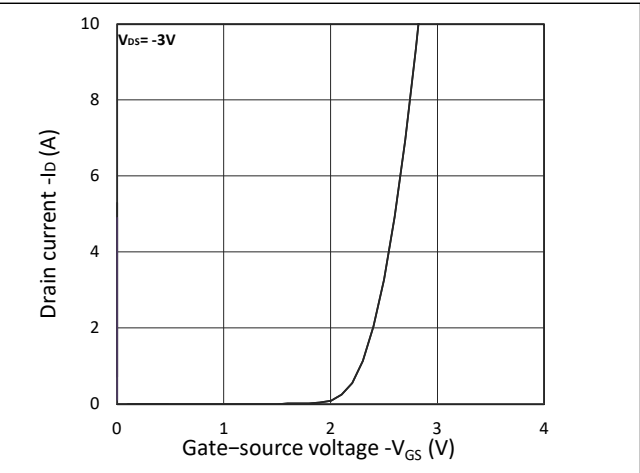


Figure 2. Transfer Characteristics

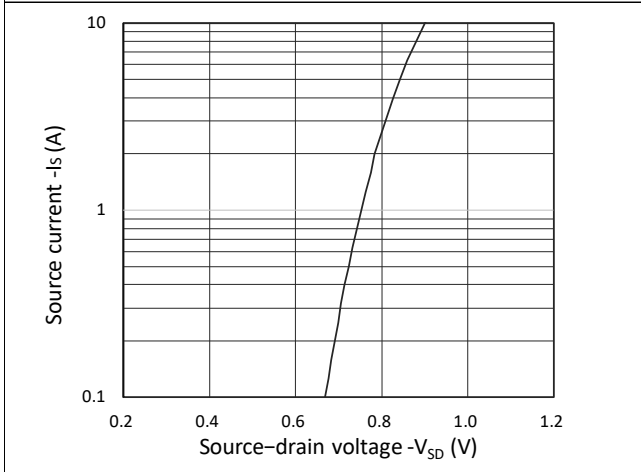


Figure 3. Forward Characteristics of Reverse

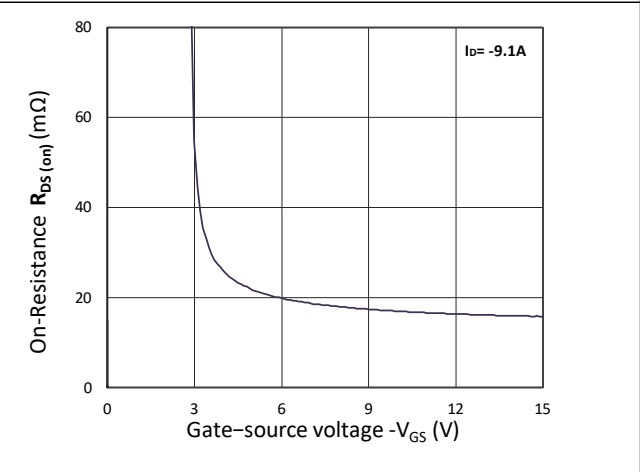


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

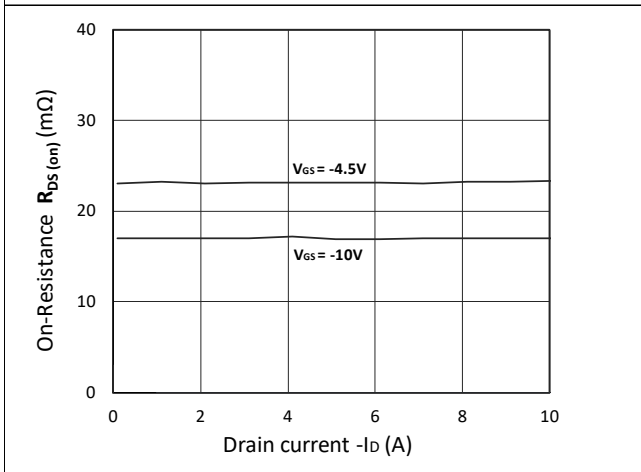


Figure 5.  $R_{DS(on)}$  vs.  $I_D$

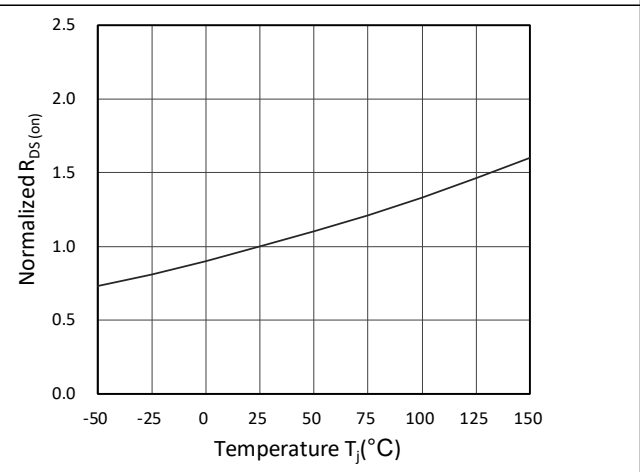


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature

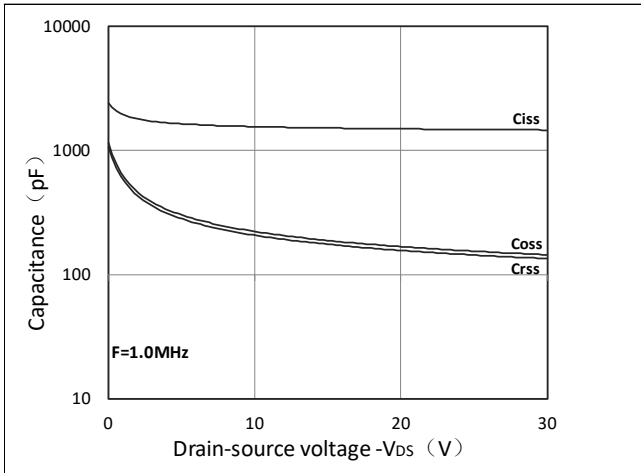


Figure 7. Capacitance Characteristics

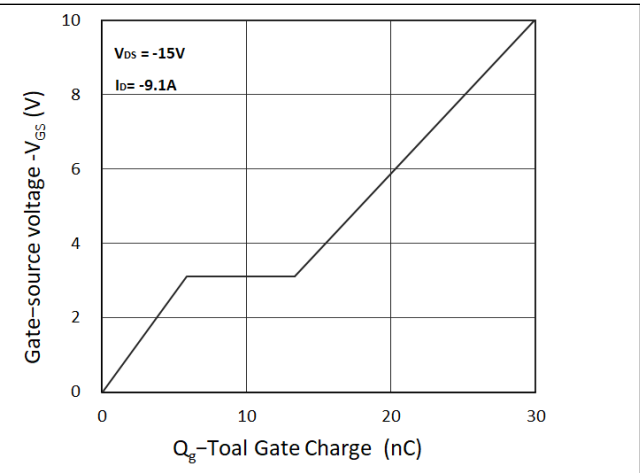
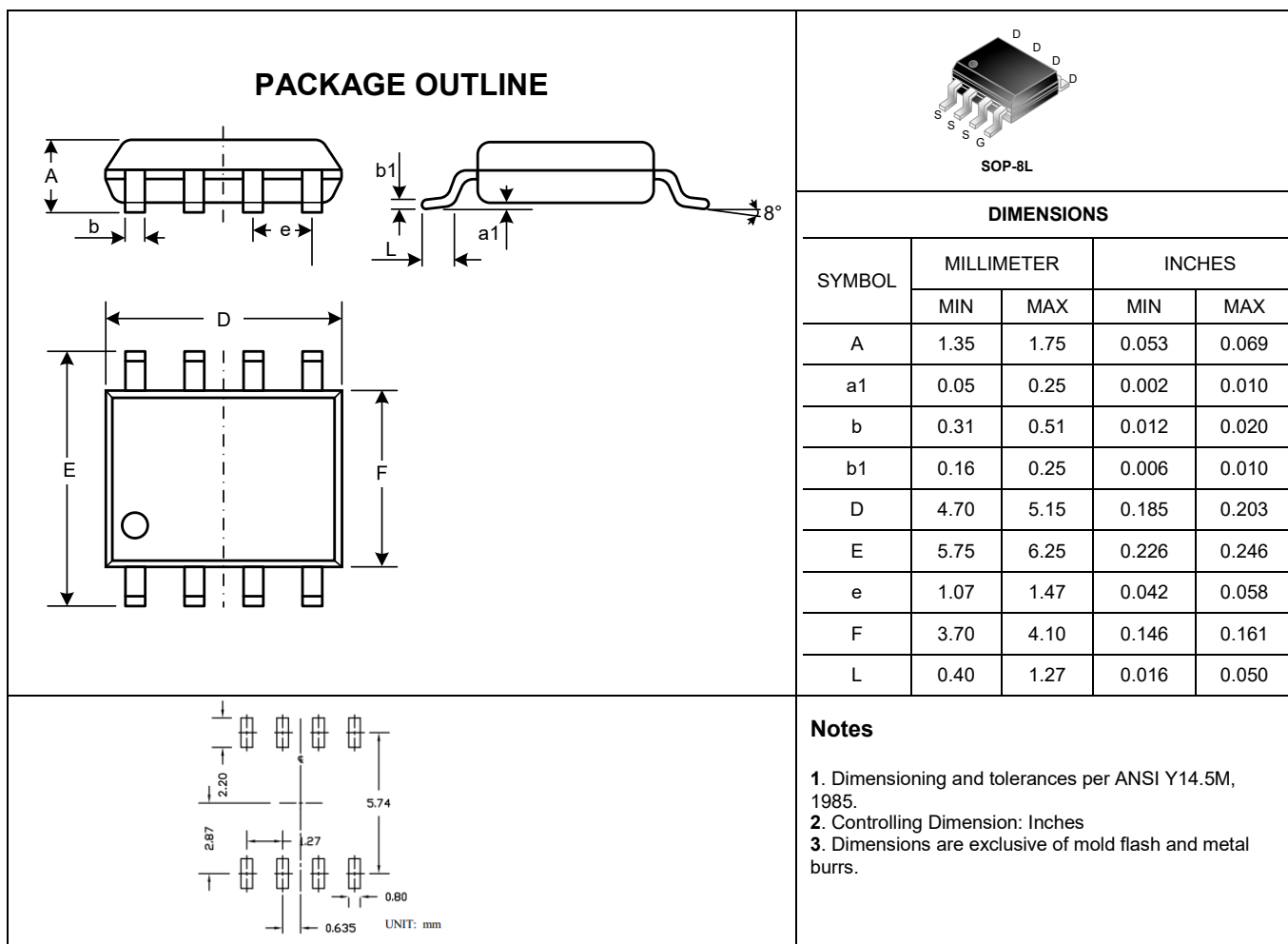
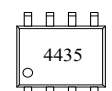


Figure 8. Gate Charge Characteristics

## Outline Drawing – SOP-8L



## Marking Codes

|              |   |
|--------------|---|
| Part Number  | WM03P91A  |
| Marking Code |  |

## Package Information

Qty: 4k/Reel

## CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201207

Tel: 86-21-68969993 Fax: 86-21-50757680 Email: [market@way-on.com](mailto:market@way-on.com)

WAYON website: <http://www.way-on.com>

For additional information, please contact your local Sales Representative.

**WAYON**® is registered trademark of Wayon Corporation.

*Specifications are subject to change without notice.*

*The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.*