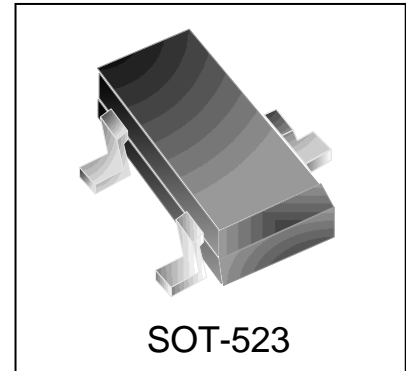


P-Channel MOSFET

Features

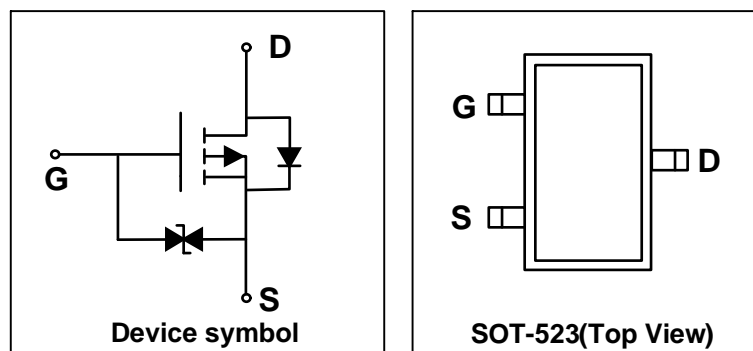
- $V_{DS} = -20\text{ V}$, $I_D = -0.66\text{ A}$
 $R_{DS(on)} < 0.52\Omega @ V_{GS} = -4.5\text{ V}$
 $R_{DS(on)} < 0.78\Omega @ V_{GS} = -2.5\text{ V}$
- Enables High Density PCB Manufacturing
- Low Voltage Drive Makes this Device Ideal for Portable Equipment
- Advanced Trench Process Technology
- ESD Protected



Mechanical Characteristics

- SOT-523 Package
- Marking : Making Code
- RoHS Compliant

Schematic & PIN Configuration



Absolute Maximum Rating

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|-----------------------------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current | I_D | -0.66 | A |
| Pulsed Drain Current | I_{DM} | -1.2 | A |
| Power Dissipation | P_D | 150 | mW |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 833 | $^{\circ}\text{C}/\text{W}$ |

Electrical Characteristics (T_{amb}=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------------------|--|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | V _{GS} = 0 V, I _D = -250μA | -20 | - | - | V |
| Zero Gate Voltage Drain Current | I_{DSS} | V _{DS} = -20V, V _{GS} = 0 V | - | - | -1 | μA |
| Gate-body Leakage Current | I_{GSS} | V _{DS} = 0 V, V _{GS} = ±10V | - | - | ±20 | μA |
| Drain-Source On-state Resistance ¹ | R_{DS(on)} | V _{GS} = -4.5V, I _D = -0.66A | - | 450 | 520 | mΩ |
| | | V _{GS} = -2.5V, I _D = -0.60A | - | 680 | 780 | |
| | | V _{GS} = -1.8V, I _D = -0.50A | - | 950 | - | |
| Gate Threshold Voltage | V_{GS(th)} | V _{DS} = V _{GS} , I _D = -250μA | -0.3 | -0.6 | -1.1 | V |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | V _{GS} = 0V, V _{DS} = -16V, f = 1MHz | - | 113 | - | pF |
| Output Capacitance | C_{oss} | | - | 15 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 9 | - | |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time ² | t_{d(on)} | V _{DS} = -10V, V _{GS} = -4.5V, I _D = -0.2A, R _G = 10Ω | - | 9 | - | ns |
| Turn-On Rise Time ² | t_r | | - | 5.7 | - | |
| Turn-Off Delay Time ² | t_{d(off)} | | - | 32.6 | - | |
| Turn- Off Fall Time ² | t_f | | - | 20.3 | - | |
| Source-Drain Diode Characteristics | | | | | | |
| Body Diode Voltage | V_{DS} | I _S = -0.5A, V _{GS} = 0V | - | - | -1.2 | V |

Notes :

1. Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
2. Guaranteed by design, not subject to production testing

Typical Characteristics

Figure 1. Output Characteristics

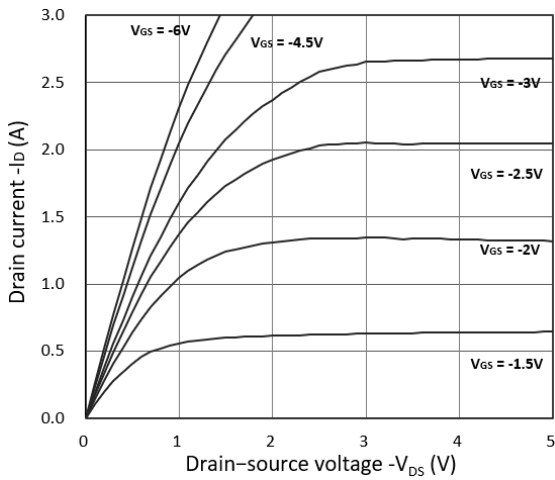


Figure 2. Transfer Characteristics

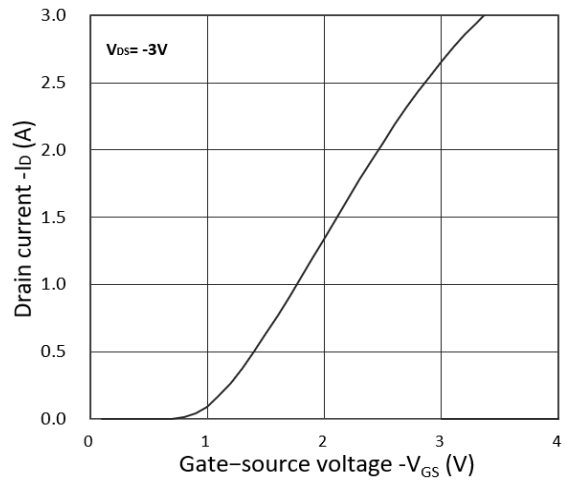


Figure 3. $R_{DS(on)}$ vs. I_D

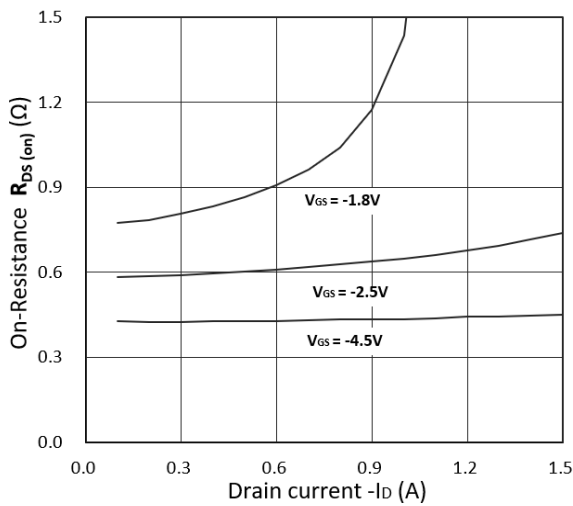


Figure 4. $R_{DS(on)}$ vs. V_{GS}

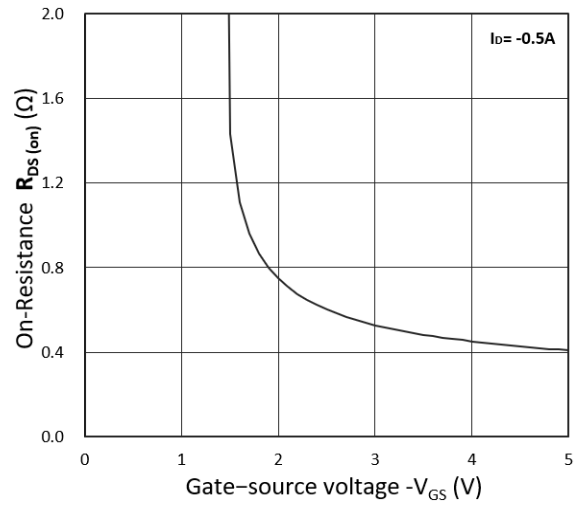


Figure 5. I_S vs. V_{SD}

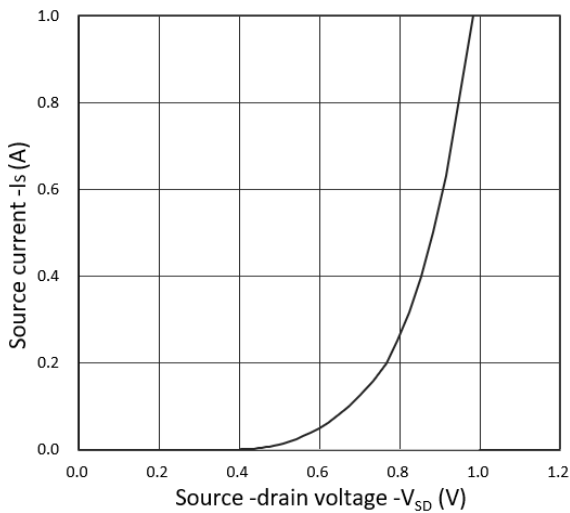
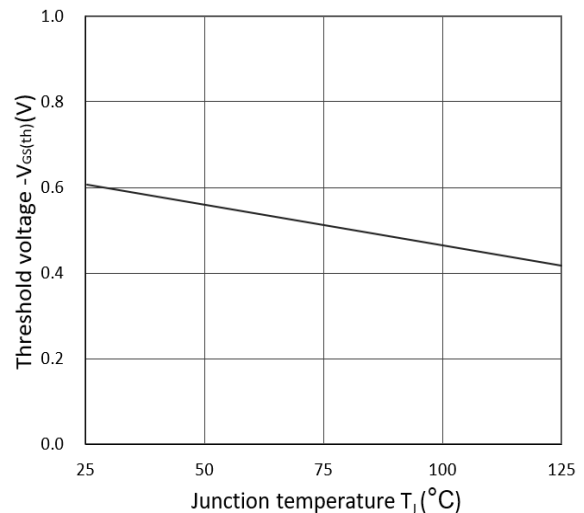


Figure 6. $V_{GS(th)}$ vs. T_J



Outline Drawing – SOT-523

PACKAGE OUTLINE

SOT-523

| SYMBOL | MILLIMETER | | INCHES | |
|--------|------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.70 | 0.90 | 0.028 | 0.035 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A2 | 0.70 | 0.80 | 0.028 | 0.031 |
| b1 | 0.15 | 0.25 | 0.006 | 0.010 |
| b2 | 0.25 | 0.35 | 0.010 | 0.014 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 1.50 | 1.70 | 0.059 | 0.067 |
| E | 0.70 | 0.90 | 0.028 | 0.035 |
| E1 | 1.45 | 1.75 | 0.057 | 0.069 |
| e1 | 0.90 | 1.10 | 0.035 | 0.043 |
| L | 0.30 | 0.50 | 0.012 | 0.020 |
| L1 | 0.26 | 0.46 | 0.01 | 0.018 |
| θ | 0 | 8° | 0 | 8° |

| DIMENSIONS | | |
|------------|--------|-------------|
| DIM | INCHES | MILLIMETERS |
| C | .055 | 1.40 |
| P | .039 | 1.00 |
| P1 | .020 | 0.50 |
| G | .024 | 0.60 |
| X | .016 | 0.40 |
| Y | .031 | 0.80 |
| Z | .087 | 2.20 |

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

| | |
|--------------|----------|
| Part Number | WM02P06L |
| Marking Code | |

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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 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.*

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