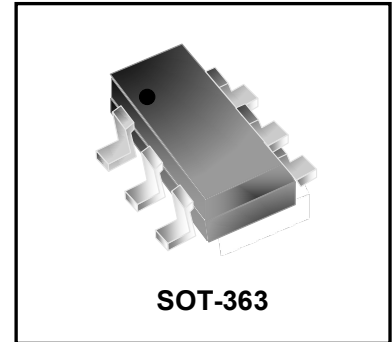


Dual N-Channel Enhancement MOSFET

Features

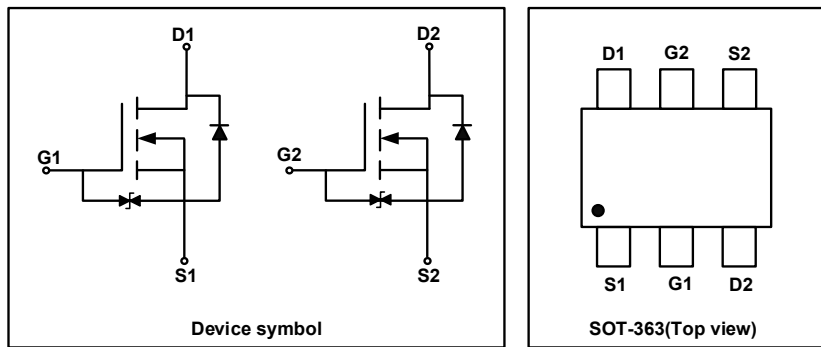
- Way-on Small Signal MOSFETs
- $V_{DS} = 60V$, $I_D = 0.34A$
 $R_{DS(on)} < 2.1\Omega @ V_{GS} = 10V$
 $R_{DS(on)} < 2.8\Omega @ V_{GS} = 4.5V$
- Trench LV MOSFET Technology
- ESD Protected



Mechanical Characteristics

- SOT-363 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 Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 0.34 | A |
| Pulsed Drain Current ¹ | I_{DM} | 1.36 | A |
| Power Dissipation | P_D | 150 | mW |
| Operating 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 ² | $R_{\theta JA}$ | 833 | $^\circ C/W$ |

Electrical Characteristics (T_J=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------------------|--|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | V _{GS} = 0V, I _D = 250μA | 60 | - | - | V |
| Gate-Body Leakage Current | I_{GSS} | V _{DS} = 0V, V _{GS} = ±20V | - | - | ±10 | μA |
| Zero Gate Voltage Drain Current | I_{DSS} | V _{DS} = 60V, V _{GS} = 0V | - | - | 1 | μA |
| Gate Threshold Voltage | V_{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 1 | 1.3 | 2.0 | V |
| Drain-Source on-State Resistance ³ | R_{DS(on)} | V _{GS} = 10V, I _D = 0.5A | - | 1.3 | 2.1 | Ω |
| | | V _{GS} = 4.5V, I _D = 0.2A | - | 1.4 | 2.8 | |
| Dynamic Characteristics⁴ | | | | | | |
| Input Capacitance | C_{iss} | V _{GS} = 0V, V _{DS} = 30V, f = 1MHz | - | 23.5 | - | pF |
| Output Capacitance | C_{oss} | | - | 4 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 1.8 | - | |
| Switching Characteristics⁴ | | | | | | |
| Total Gate charge | Q_g | V _{GS} = 4.5V, V _{DS} = 15V, I _D = 2.5A | - | 0.3 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 0.15 | - | |
| Gate-Drain Charge | Q_{gd} | | - | 0.08 | - | |
| Turn-on Delay Time | t_{d(on)} | V _{DD} = 30V, V _{GS} = 10V, I _D = 0.2A, R _G = 25Ω | - | 3.9 | - | ns |
| Turn-on Rise Time | t_r | | - | 3.4 | - | |
| Turn-off Delay Time | t_{d(off)} | | - | 15.7 | - | |
| Turn- off Fall Time | t_f | | - | 9.9 | - | |
| Source-Drain Diode Characteristics | | | | | | |
| Body Diode Voltage ³ | V_{SD} | I _S = 0.3A, V _{GS} = 0V | - | - | 1.5 | V |
| Continuous Source Current | I_S | | - | - | 0.34 | A |

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The data tested by surface mounted on a 1 inch² 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

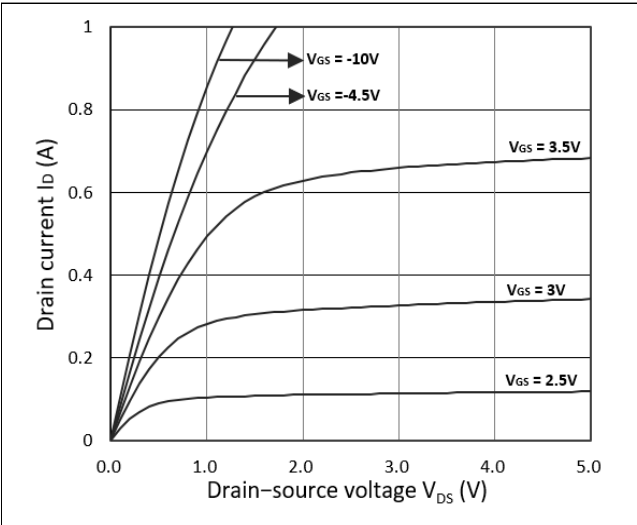


Figure 1. Output Characteristics

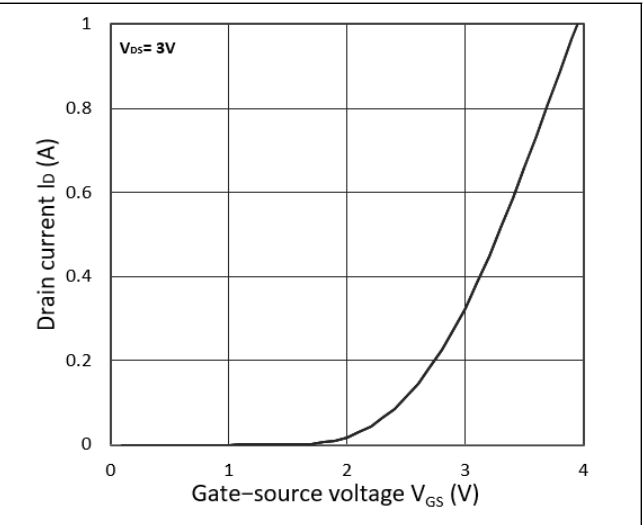


Figure 2. Transfer Characteristics

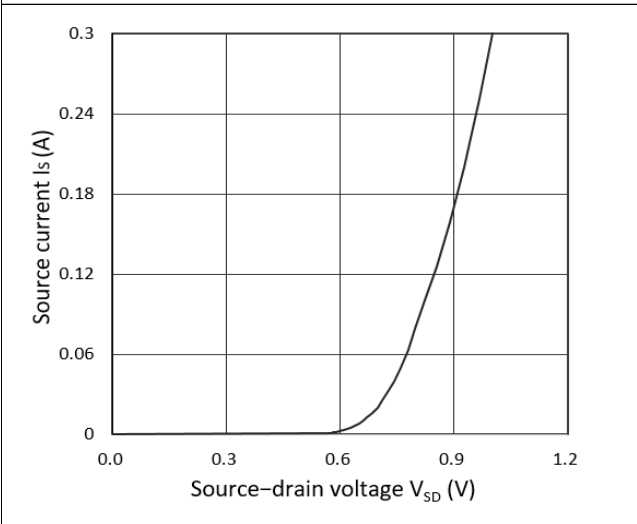


Figure 3. Forward Characteristics of Reverse

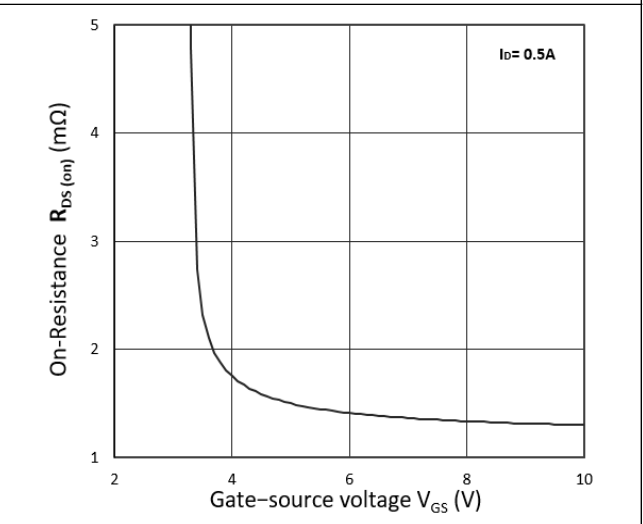


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

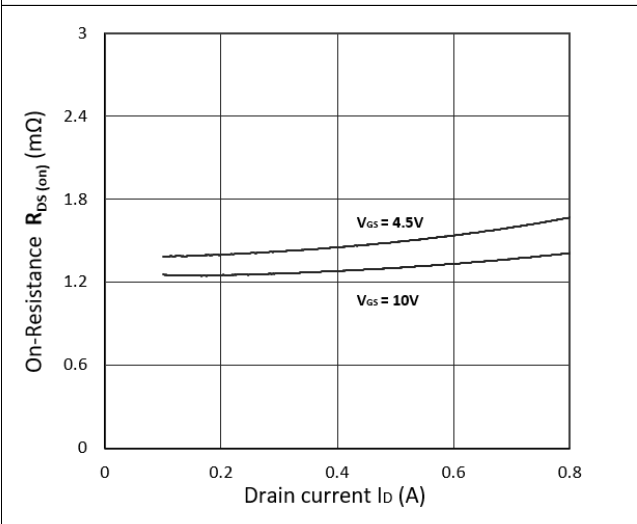


Figure 5. $R_{DS(ON)}$ vs. I_D

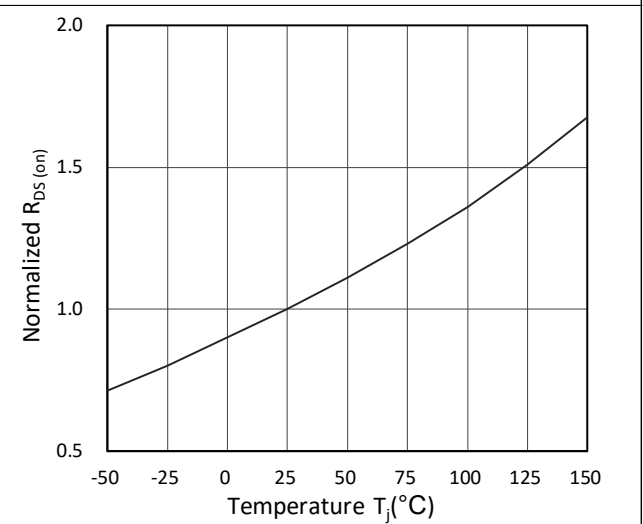


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

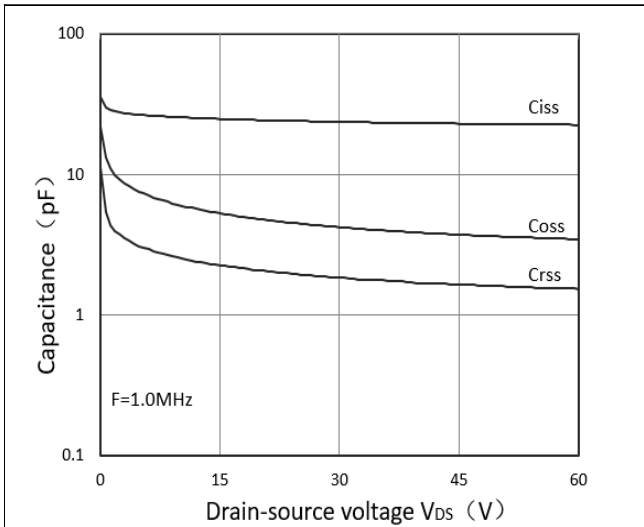


Figure 7. Capacitance Characteristics

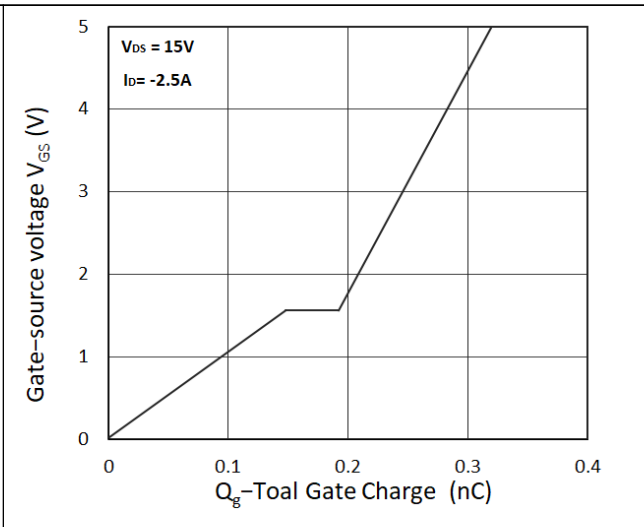


Figure 8. Gate Charge Characteristics

Outline Drawing – SOT-363

PACKAGE OUTLINE

SOT-363

| SYMBOL | MILLIMETER | | INCHES | |
|--------|------------|------|------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.90 | 1.10 | 0.035 | 0.043 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| b | 0.15 | 0.35 | 0.006 | 0.014 |
| c | 0.10 | 0.15 | 0.004 | 0.006 |
| D | 2.00 | 2.20 | 0.079 | 0.087 |
| E1 | 1.15 | 1.35 | 0.045 | 0.053 |
| E | 2.15 | 2.45 | 0.085 | 0.096 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.20 | 1.40 | 0.047 | 0.055 |
| L | 0.525 REF. | | 0.021 REF. | |
| L1 | 0.26 | 0.46 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

| DIMENSIONS | | |
|------------|-----------|-------------|
| DIM | INCHES | MILLIMETERS |
| Z | 0.110 | 2.79 |
| G | 0.043 | 1.09 |
| C | 0.076 | 1.94 |
| P | 0.026 TYP | 0.65 TYP |
| X | 0.016 | 0.40 |
| Y | 0.033 | 0.85 |

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 | WM06DN03D |
| Marking Code | |

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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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.