

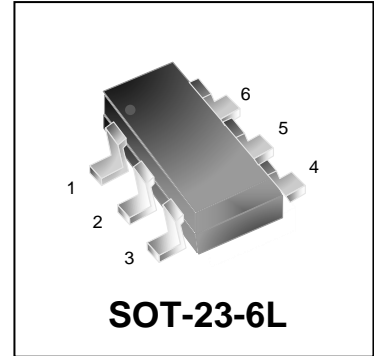


# WM02DN48M3

## Dual N-Channel MOSFET

### Features

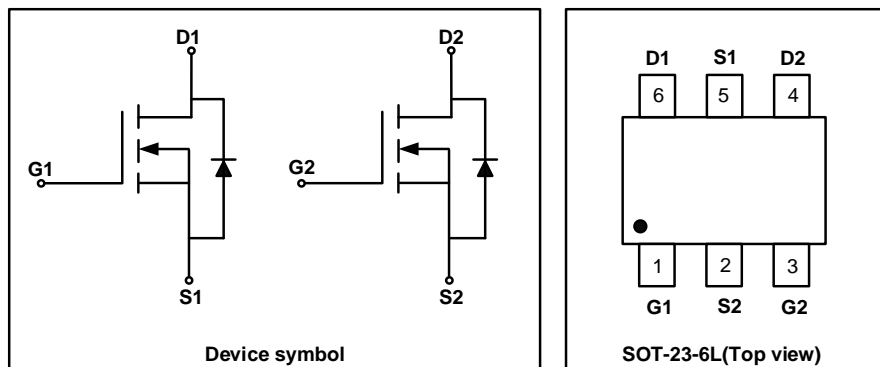
- $V_{DS} = 20V$ ,  $I_D = 4.8A$   
 $R_{DS(on)} < 30m\Omega @ V_{GS} = 4.5V$   
 $R_{DS(on)} < 40m\Omega @ V_{GS} = 2.5V$
- Trench Power MOSFET
- Fast Switching Speed
- Low On-Resistance
- Green Device Available



### Mechanical Characteristics

- SOT-23-6L 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	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	4.8	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	15	A
Power Dissipation	$P_D$	1	W
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$
Thermal Resistance from Junction-to-Ambient <sup>2</sup>	$R_{\theta JA}$	125	$^{\circ}C/W$

**Electrical Characteristics** ( $T_{amb}=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	$\mu A$
Gate-body Leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	$\pm 100$	nA
Gate-Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.2	V
Drain-Source on-Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 4.8A$	-	20	30	m $\Omega$
		$V_{GS} = 2.5V, I_D = 4A$	-	25	40	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	-	515	-	pF
Output Capacitance	$C_{oss}$		-	73	-	
Reverse Transfer Capacitance	$C_{rss}$		-	65	-	
<b>Switching Characteristics</b>						
Total Gate Charge <sup>4</sup>	$Q_g$	$V_{GS} = 4.5V, I_D = 3A, V_{DS} = 10V$	-	10	-	nC
Gate-Source Charge <sup>4</sup>	$Q_{gs}$		-	1.5	-	
Gate-Drain Charge <sup>4</sup>	$Q_{gd}$		-	1.6	-	
Turn-on Time <sup>4</sup>	$t_{d(on)}$	$V_{GEN} = 4.5V, V_{DD} = 10V, I_D = 1A, R_{GEN} = 6\Omega$	-	8	-	nS
Rise Time <sup>4</sup>	$t_r$		-	9	-	
Turn-off Time <sup>4</sup>	$t_{d(off)}$		-	15	-	
Fall Time <sup>4</sup>	$t_f$		-	4	-	
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$I_S = 4.8A, V_{GS} = 0V$	-	-	1.2	V

**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board using 1 square inch pad size, 1oz single-side copper.
3. Pulse Test: Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to product

Typical Characteristics

Figure 1. Output Characteristics

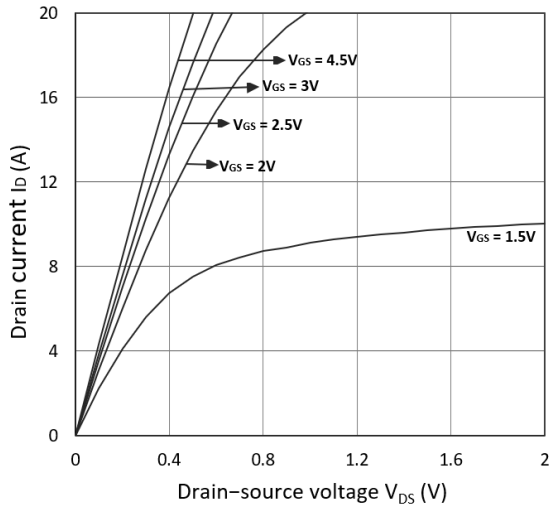


Figure 2. Transfer Characteristics

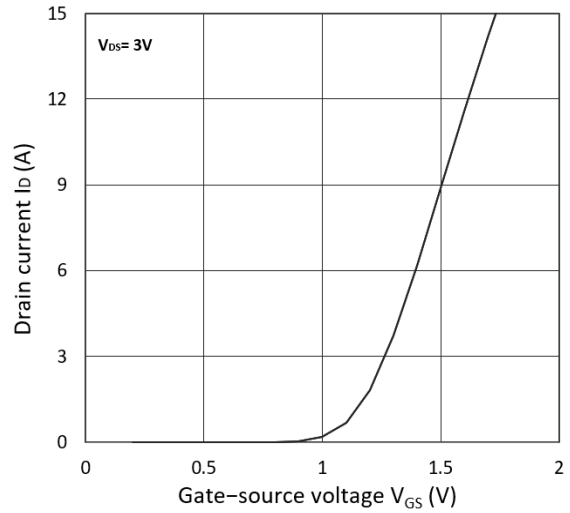


Figure 3.  $R_{DS(on)}$  vs.  $I_D$

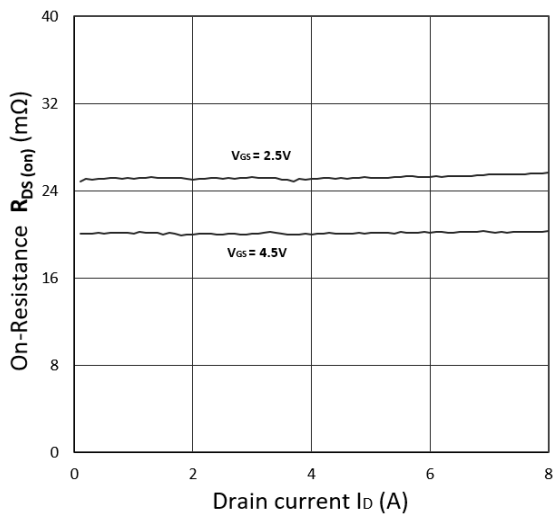


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

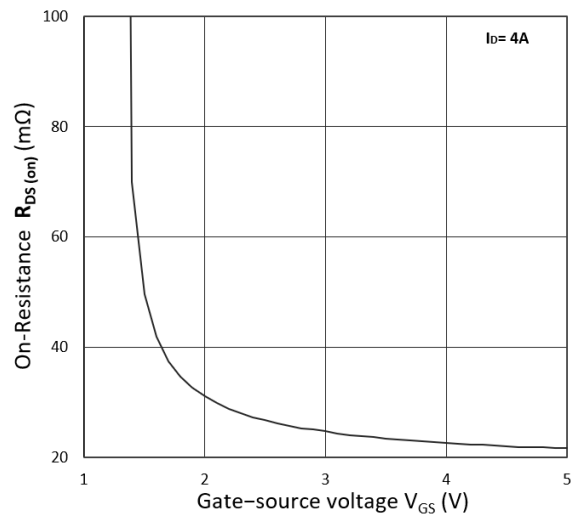


Figure 5.  $I_S$  vs.  $V_{SD}$

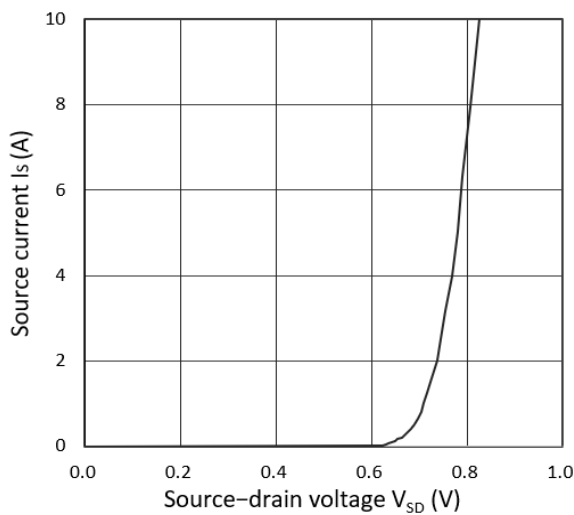
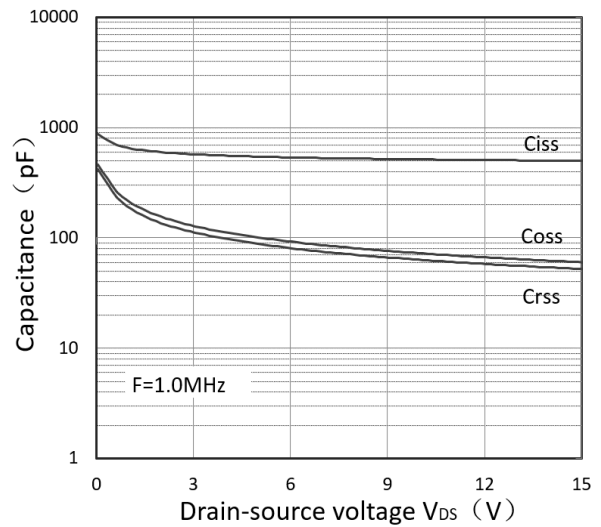


Figure 6. Capacitance Characteristics



Outline Drawing – SOT-23-6L

**PACKAGE OUTLINE**

SIDE VIEW      SEE DETAIL A

DETAIL A

SOT-23-6L

**DIMENSIONS**

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.035	0.057	0.90	1.45
A1	0.000	0.006	0.00	0.15
b	0.010	0.021	0.25	0.55
c	0.003	0.008	0.08	0.22
D	0.110	0.122	2.80	3.10
E1	0.060	0.069	1.50	1.75
E	0.102	0.118	2.60	3.00
e	0.037 BSC		0.95 BSC	
e1	0.075 BSC		1.90 BSC	
L	0.012	0.024	0.30	0.60
L1	0.022	0.030	0.55	0.75
θ 1	0°	8°	0°	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	0.098	2.50
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60

**Notes:**  
Controlling Dimension: Millimeter.

Marking Codes

Part Number	WM02DN48M3
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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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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