WM02DN60M3

Dual N-Channel Enhancement Mode MOSFET

Description

WM02DN60M3 uses advanced power trench technology that has been especially tailored to minimize the on-state resistance This device is suitable for un-directional or bidirectional load switch, facilitated by its common-drain configuration

$V_{(BR)DSS}$(V)	I_D(A)	$R_{DS(on)}$TYP (mΩ)
20	6	15.0 @VGS=4.5V
		16.5 @VGS=3.8V
		19.0 @VGS=2.5V

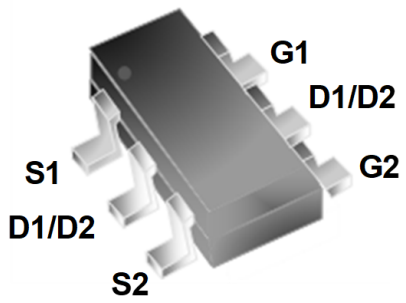
Features

- Fast switching and low $R_{d(son)}$
- RoHS Compliant and Halogen-Free

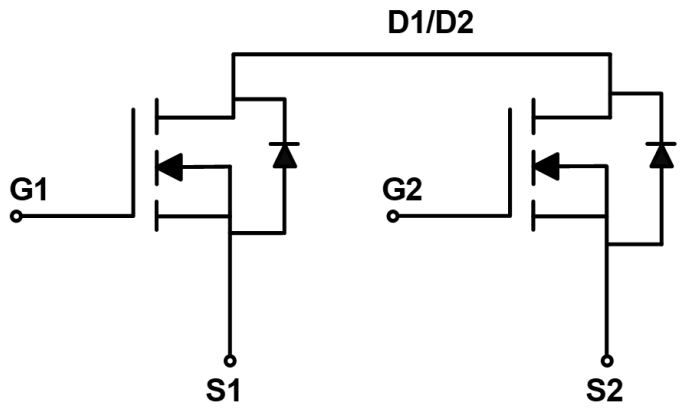
Applications

- Battery protection
- Load switch

Schematic & PIN Configuration



SOT-23-6L(Top view)



Device symbol

Absolute Maximum Rating

Parameter		Symbol	Value	Unit
Drain-Source voltage		V_{DS}	20	V
Gate-Source voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	6.0	A
	T_A=70°C		4.8	
Pulsed Drain Current[1]		I_{DM}	25	A
Total Power Dissipation	T_A=25°C	P_D	1.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C
Maximum Junction-to-Ambient[2]		$R_{\theta JA}$	83	°C/W

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250μA	20	-	-	V
Drain Cut-off Current	I_{DSS}	V_{DS} =20V, V_{GS} = 0 V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±12V	-	-	±100	nA
Gate Threshold Voltage[3]	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.7	1.2	V
Drain-Source on-state Resistance[3]	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 4.5A	-	15	20	mΩ
		V_{GS} = 3.8V, I_D = 4A	-	16.5	23	
		V_{GS} = 2.5V, I_D = 3.5A	-	19	27	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz	-	705	-	pF
Output Capacitance	C_{oss}		-	125	-	
Reverse Transfer Capacitance	C_{rss}		-	105	-	
Switching Characteristics						
Total Gate Charge[4]	Q_g	V_{GS} = 4.5V, V_{DS} = 10V, I_D = 6A	-	12	-	nC
Gate−Source Charge[4]	Q_{gs}		-	2.3	-	
Gate−Drain Charge[4]	Q_{gd}		-	1	-	
Turn-on Time[4]	$t_{d(on)}$	V_{DD} = 10V, I_D = 1A, R_G=6Ω, V_{GS} = 4.5V	-	10	-	nS
Rise Time[4]	t_f		-	11	-	
Turn-off Time[4]	$t_{d(off)}$		-	35	-	
Fall Time[4]	t_f		-	30	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S = 1.7A, 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≤300μs, duty cycle≤2%.
4. Guaranteed by design, not subject to product

Typical Characteristics

Figure 1. Output Characteristics

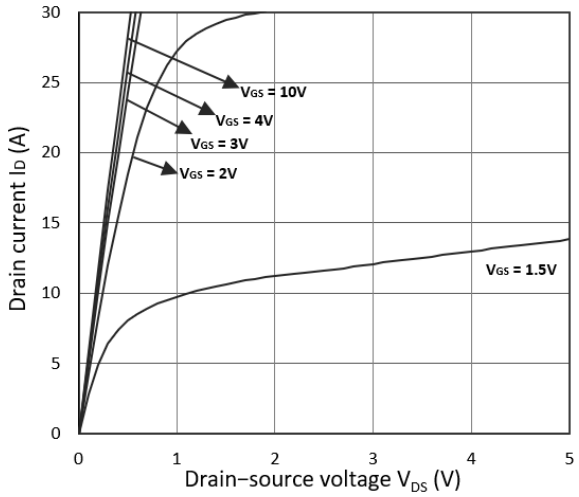


Figure 2. Transfer Characteristics

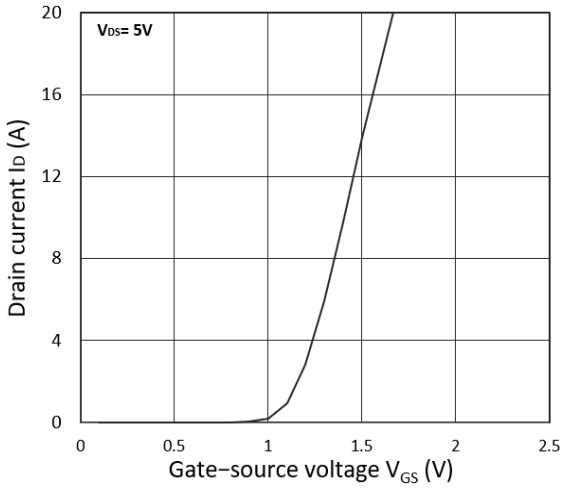


Figure 3. $R_{DS(ON)}$ vs. I_D

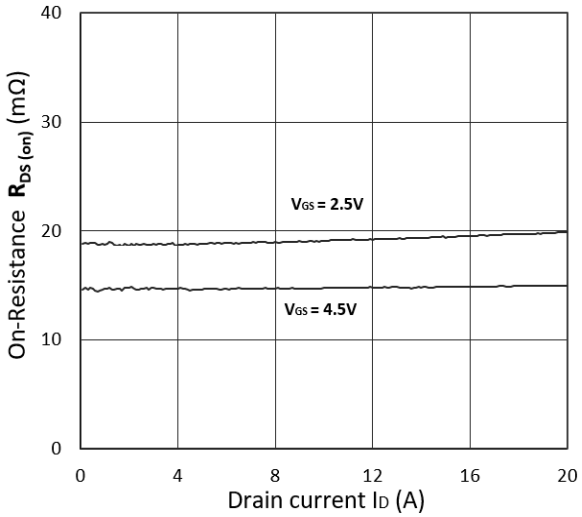


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

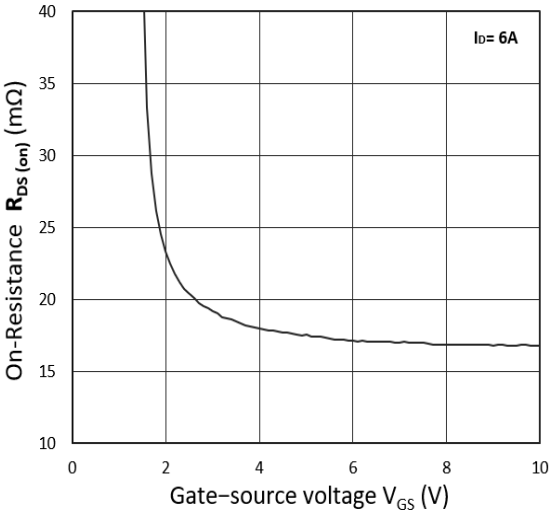


Figure 5. I_S vs. V_{SD}

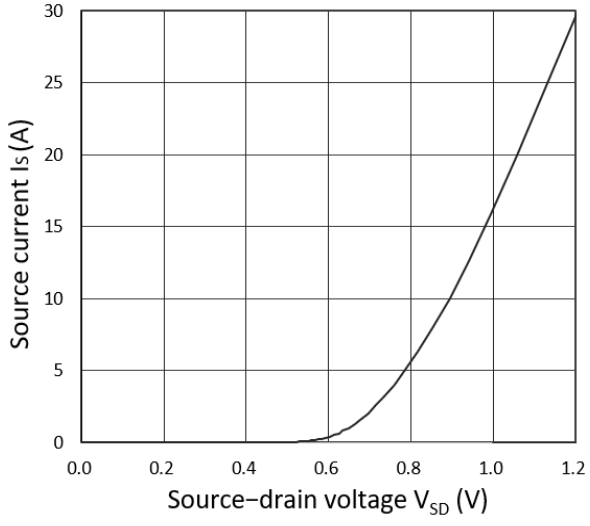
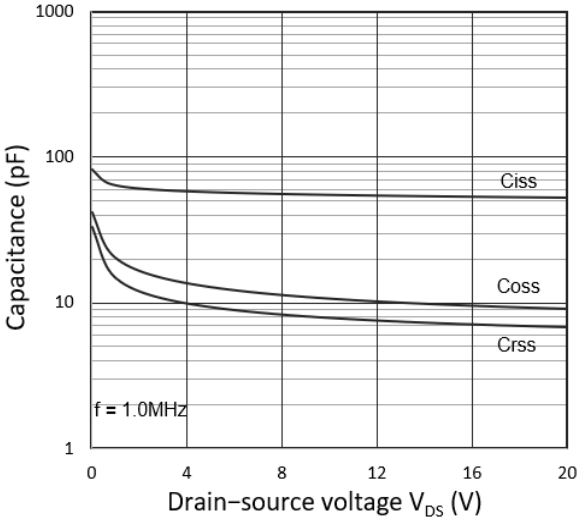
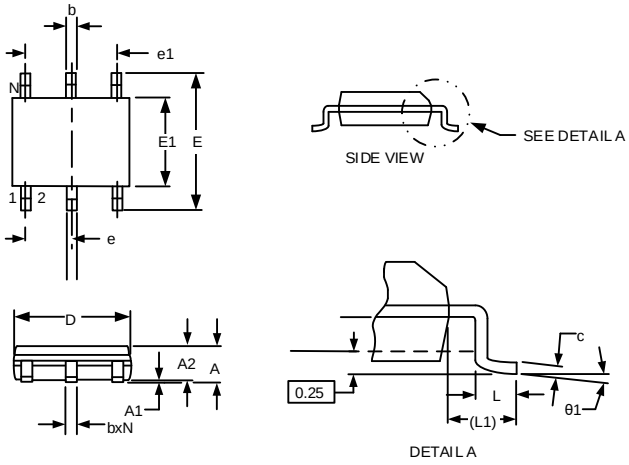


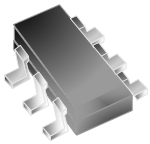
Figure 6. Capacitance Characteristics



Outline Drawing –SOT-23-6L

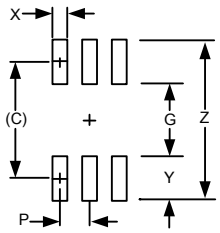
PACKAGE OUTLINE





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	0.075BSC		1.90 BSC	
L	0.012	0.024	0.30	0.60
L1	0.022	0.030	0.55	0.75
θ1	0°	8°	0°	8°

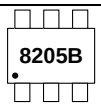


DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	0.098	2.50
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60

Notes:

Controlling Dimension: Millimeter.

Marking Codes

Part Number	WM02DN60M3
Marking Code	

Package Information

Qty： 3k/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
WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.