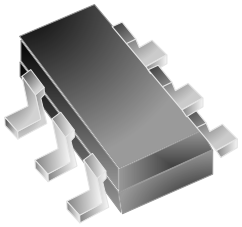
WM02DH50M3

Complimentary Pair Enhancement MOSFET

Features

- N-Channel: V_{DS}= 20V, I_D = 5.0A
  $R_{DS(on)}$ < 50mΩ @ V_{GS} = 4.5V
  $R_{DS(on)}$ < 70mΩ @ V_{GS} = 2.5V
- P-Channel: V_{DS}= -20V, I_D = -3.0A
  $R_{DS(on)}$ < 70mΩ @ V_{GS} = 4.5V
  $R_{DS(on)}$ < 90mΩ @ V_{GS} = 2.5V
- Fast Switching Speed
- Low Input Capacitance
- Green Device Available

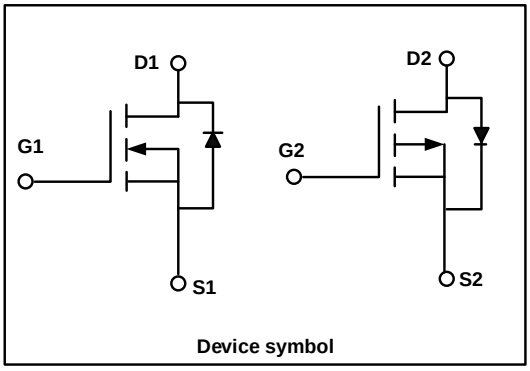


SOT-23-6L

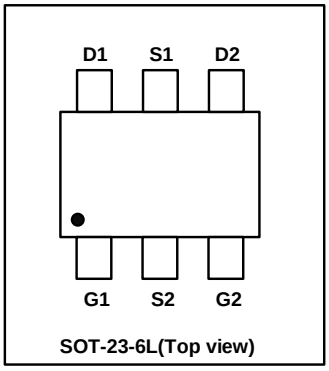
Mechanical Characteristics

- SOT-23-6L Package
- Marking : Making Code
- RoHS Compliant

Schematic & PIN Configuration



Device symbol



SOT-23-6L(Top view)

Absolute Maximum Ratings

Parameter	Symbol	Value		Unit
Drain-Source voltage	V_{DS}	20	-20	V
Gate-Source voltage	V_{GS}	±8	±8	
Continuous Drain Current	I_D	5	-3	A
Power Dissipation[1]	P_D	1		W
Operating Junction Temperature	T_J	150		°C
Storage Temperature	T_{STG}	–55 to 150		°C
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	125		°C/W

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V	-	-	1	μA
Gate-body Leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V	-	-	±100	nA
Gate-Threshold Voltage[3]	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.7	1	V
Static Drain-Source On-Resistance[3]	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 4.5A	-	25	50	mΩ
		V_{GS} = 2.5V, I_D = 3.5A	-	32	70	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =10V, V_{GS} = 0V, f =1MHz	-	347	-	pF
Output Capacitance	C_{oss}		-	61	-	
Reverse Transfer Capacitance	C_{rss}		-	54	-	
Switching Characteristics						
Total Gate Charge[4]	Q_g	V_{DS} = 10V, V_{GS} = 4.5V, I_D = -3.0A	-	6.2	-	nC
Gate-Source Charge[4]	Q_{gs}		-	1.1	-	
Gate-Drain Charge[4]	Q_{gd}		-	1.9	-	
Turn-on Delay Time[4]	$t_{d(on)}$	V_{DD} = 10V, V_{GS} = 4V, I_D = 1.0A, R_G=10Ω	-	6.3	-	nS
Rise Time[4]	t_r		-	10	-	
Turn-off Delay Time[4]	$t_{d(off)}$		-	43	-	
Fall Time[4]	t_f		-	20	-	
Drain-Source Body Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S= 1 A， V_{GS} = 0V	-	-	1.2	V

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V	-	-	-1	μA
Gate-body Leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V	-	-	±100	nA
Gate-Threshold Voltage[3]	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.5	-0.7	-1	V
Static Drain-Source On-Resistance[3]	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -3.0A	-	50	70	mΩ
		V_{GS} = -2.5V, I_D = -1.5A	-	60	90	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} = -10V, V_{GS} =0V, f =1MHz	-	616	-	pF
Output Capacitance	C_{oss}		-	75	-	
Reverse Transfer Capacitance	C_{rss}		-	65	-	
Switching Characteristics						
Total Gate Charge[4]	Q_g	V_{DS} = 10V, V_{GS} = 4.5V, I_D = -3.0A	-	13	-	nC
Gate-Source Charge[4]	Q_{gs}		-	0.7	-	
Gate-Drain Charge[4]	Q_{gd}		-	1.3	-	
Turn-On Delay Time[4]	$t_{d(on)}$	V_{DD} = 10V, V_{GS} = 4V, I_D = 1.0A, R_G=10Ω	-	11	-	nS
Rise Time[4]	t_r		-	17.5	-	
Turn-Off Delay Time[4]	$t_{d(off)}$		-	23	-	
Fall Time[4]	t_f		-	10	-	
Drain-Source Body Diode Characteristics						
Body Diode Voltage	V_{SD}	I_S= -1A， V_{GS} = 0V	-	-	-1.1	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≤0.5%.
4. Guaranteed by design, not subject to product

Typical Characteristics: N-CHANNEL

Figure 1. Output Characteristics

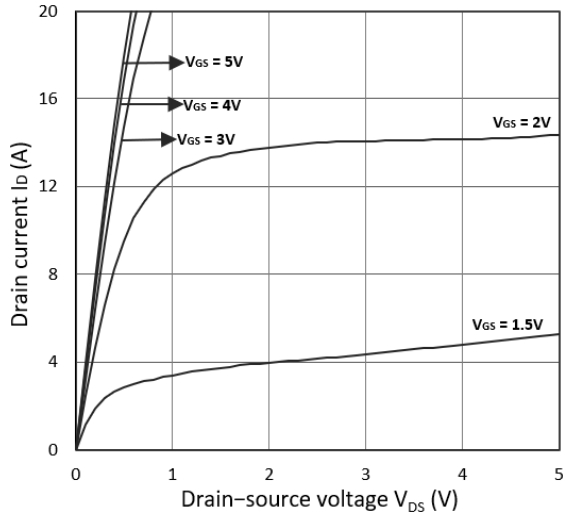


Figure 2. Transfer Characteristics

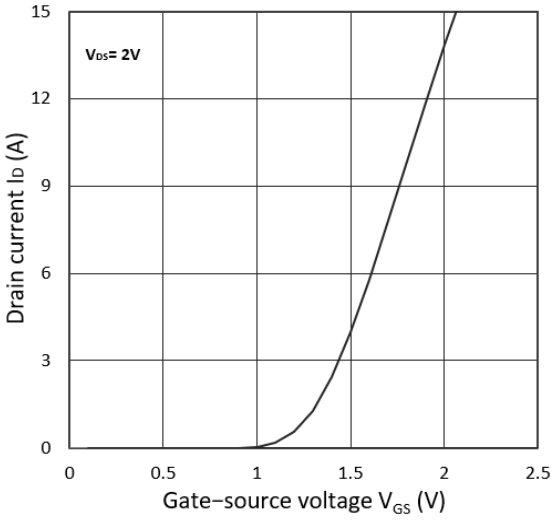


Figure 3. $R_{DS(on)}$ vs. I_D

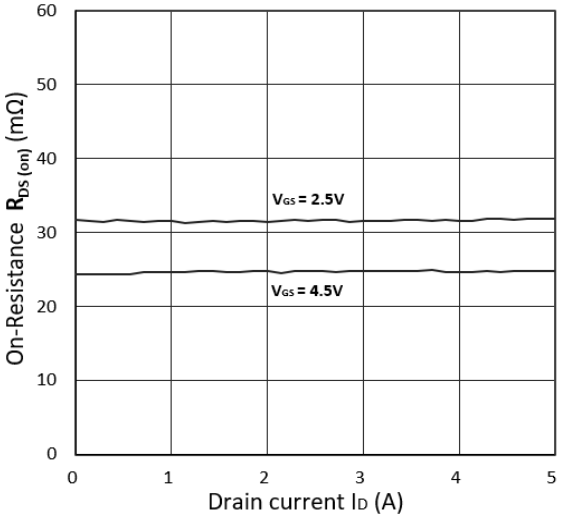


Figure 4. $R_{DS(on)}$ vs. V_{GS}

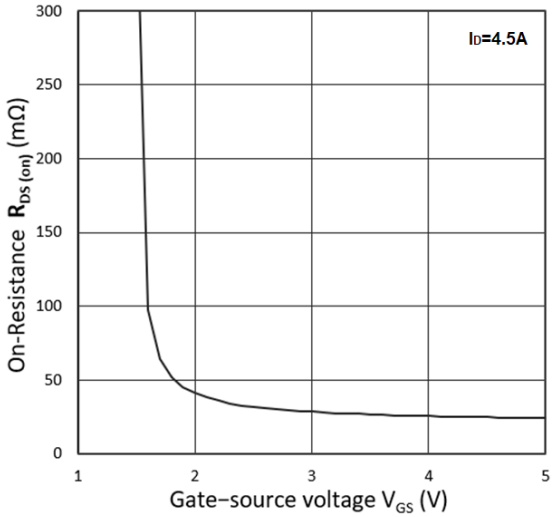


Figure 5. I_S vs. V_{SD}

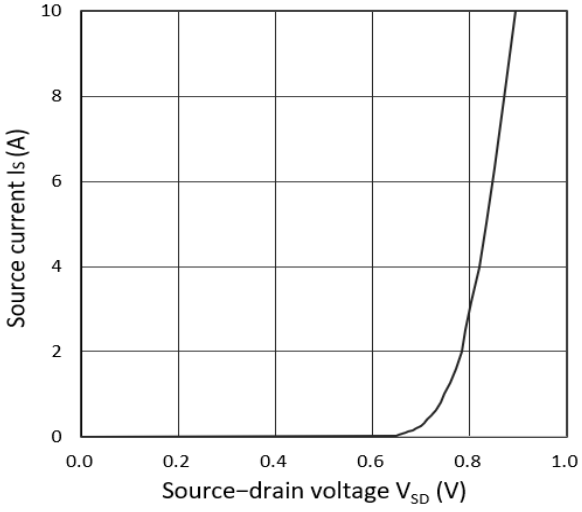
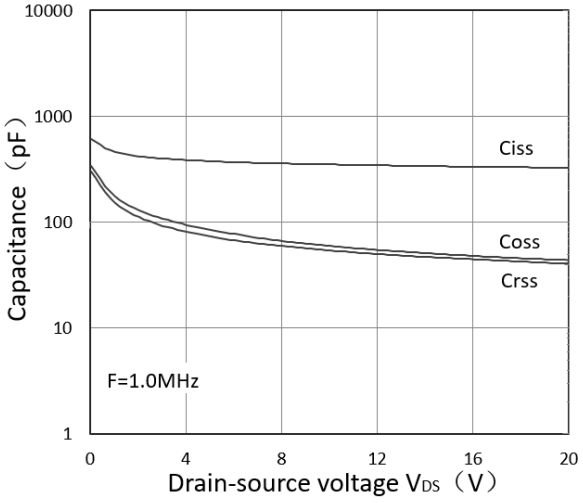


Figure 6. Capacitance Characteristics



Typical Characteristics: P-CHANNEL

Figure 1. Output Characteristics

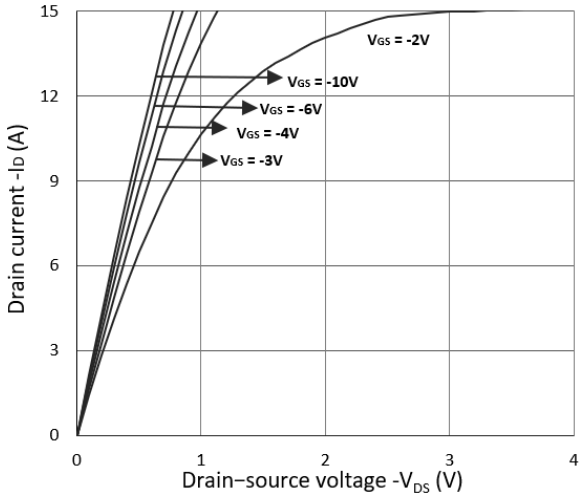


Figure 2. Transfer Characteristics

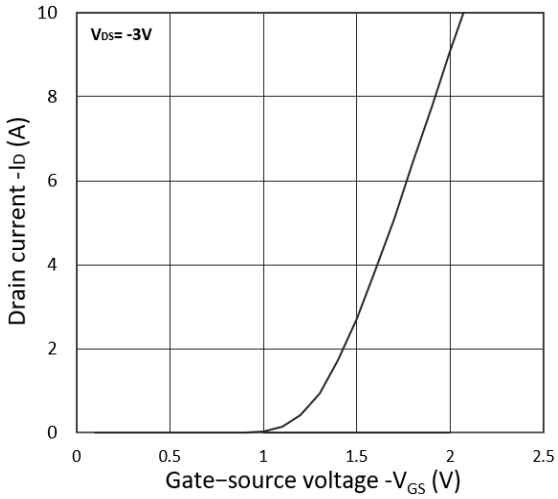


Figure 3. $R_{DS(ON)}$ vs. I_D

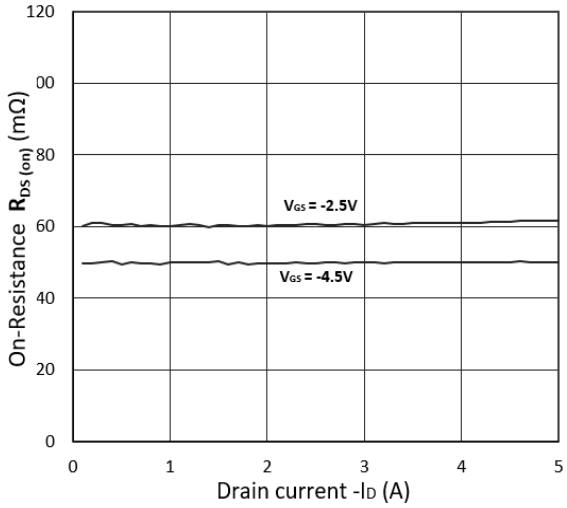


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

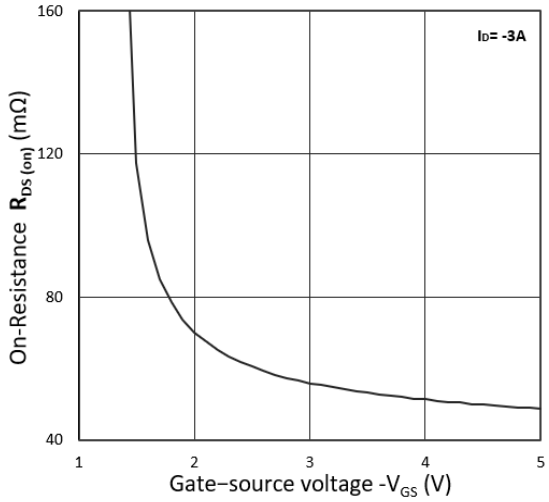


Figure 5. I_S vs. V_{SD}

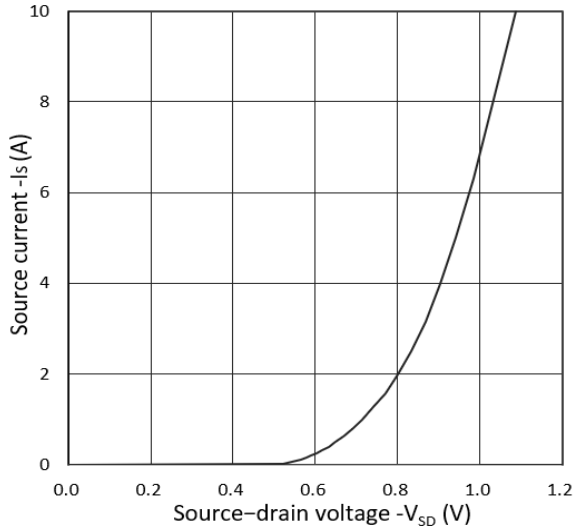
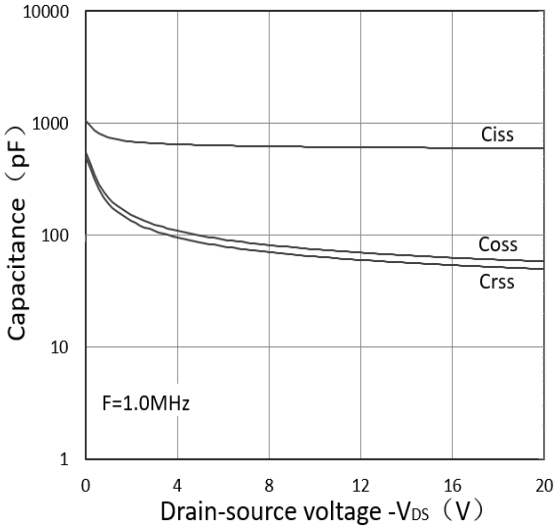
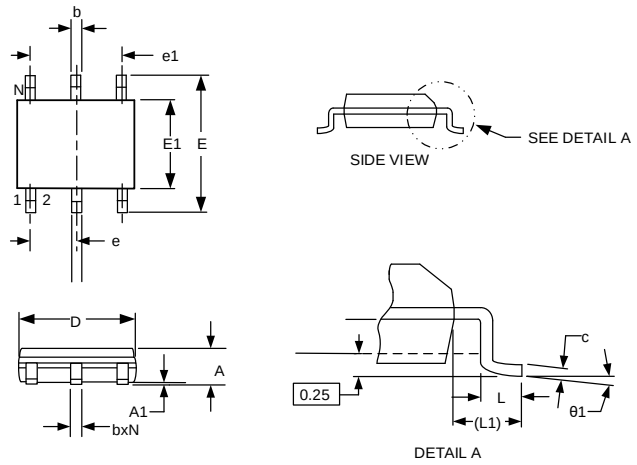


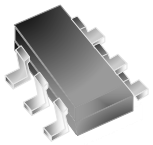
Figure 6. Capacitance Characteristics



Outline Drawing – SOT-23-6L

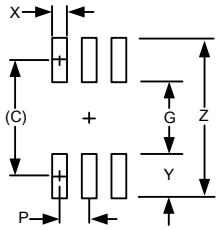
PACKAGE OUTLINE





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
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	WM02DH50M3
Marking Code	

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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