



# WM02P56M

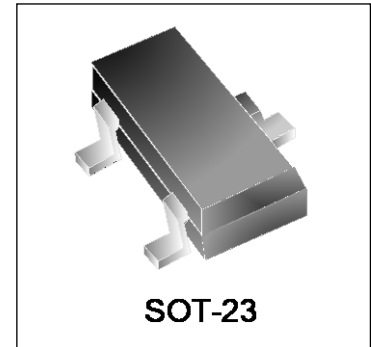
## P-Channel MOSFET

### Features

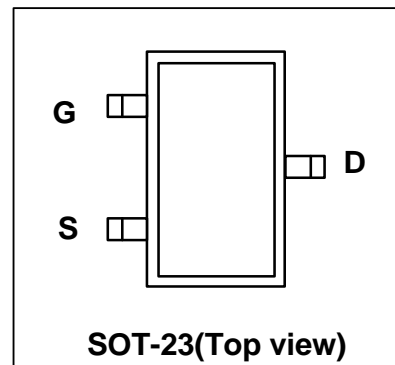
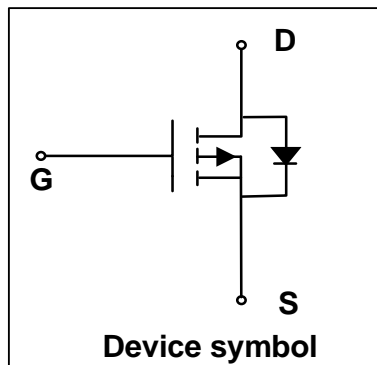
- $V_{DS} = -20\text{ V}$ ,  $I_D = -5.6\text{ A}$   
 $R_{DS(on)} < 38\text{ m}\Omega$  @  $V_{GS} = -4.5\text{ V}$   
 $R_{DS(on)} < 49\text{ m}\Omega$  @  $V_{GS} = -2.5\text{ V}$
- Excellent  $R_{DS(on)}$
- Low Gate Charge, Low Gate Voltages

### Mechanical Characteristics

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



### Schematic & PIN Configuration



### Absolute Maximum Rating

Rating	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Continuous Drain Current( $t \leq 10\text{s}$ )	$I_D$	-5.6	A
Power Dissipation( $t \leq 10\text{s}$ )	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Operating Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1	
Gate-Body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-16V, V_{GS}=0V$	-	-	-1	$\mu A$
Drain-Source on-Resistance <sup>1</sup>	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-4.1A$	-	28	38	m $\Omega$
		$V_{GS}=-2.5V, I_D=-2.0A$	-	36	49	
		$V_{GS}=-1.8V, I_D=-1.0A$	-	50	75	
Forward Transconductance	$g_{fs}$	$V_{DS}=-5V, I_D=-3.3A$	-	3	-	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=-10V,$ $f=1.0\text{MHz}$	-	1200	-	pF
Output Capacitance	$C_{oss}$		-	183	-	
Reverse Transfer Capacitance	$C_{riss}$		-	170	-	
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{GS}=-4.5V, V_{DS}=-10V,$ $I_D=-3.3A$	-	14	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.8	-	
Gate-Drain Charge	$Q_{gd}$		-	2.5	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-10V, V_{GEN}=-4.5V$ $R_L=6\Omega, R_{GEN}=6\Omega,$ $I_D=-1A$	-	20	-	ns
Rise Time <sup>2</sup>	$t_r$		-	18	-	
Turn-off Delay Time <sup>2</sup>	$t_{d(off)}$		-	50	-	
Fall Time <sup>2</sup>	$t_f$		-	10	-	
<b>Drain-Source Body Diode Characteristics</b>						
Diode Voltage	$V_{SD}$	$I_S=-5.6A, V_{GS}=0V$	-	-	-1.2	V

- Notes: 1. Pulse Test: Pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$   
2. These parameters have no way to verify.

### Typical Characteristics

Figure 1. Output Characteristics

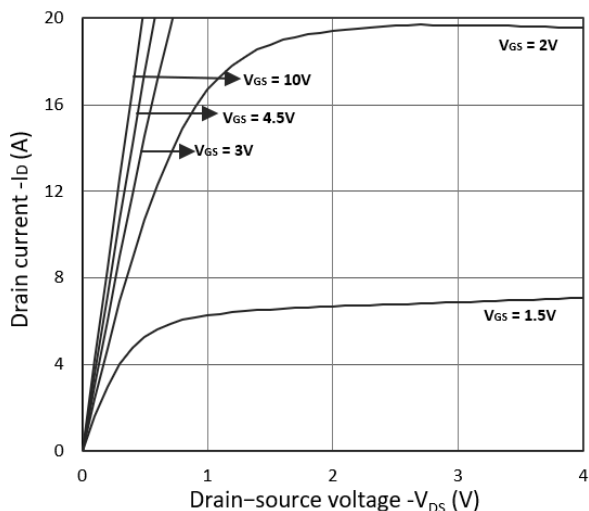


Figure 2. Transfer Characteristics

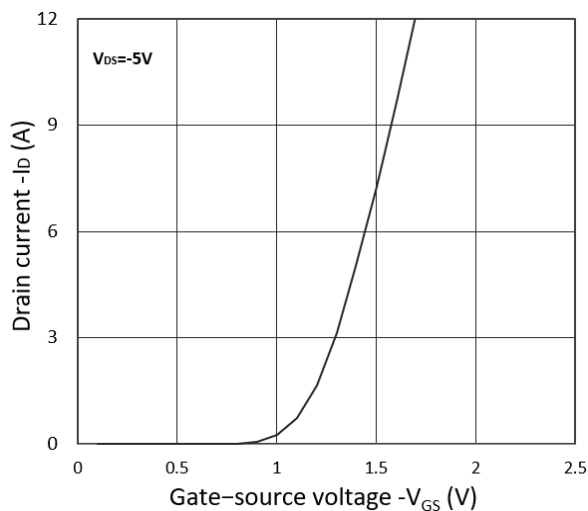


Figure 3.  $R_{DS(ON)}$  vs.  $I_D$

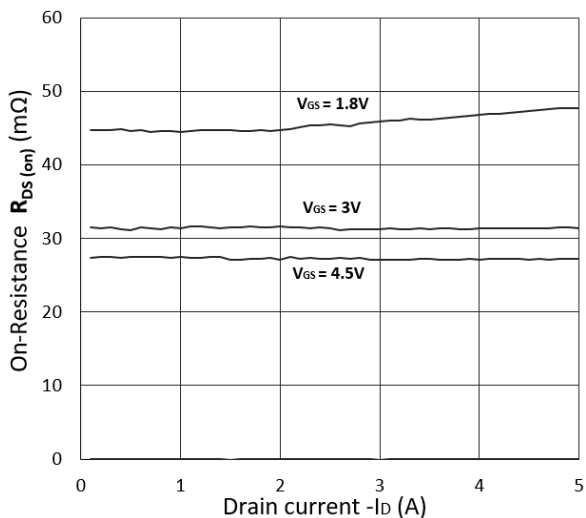


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

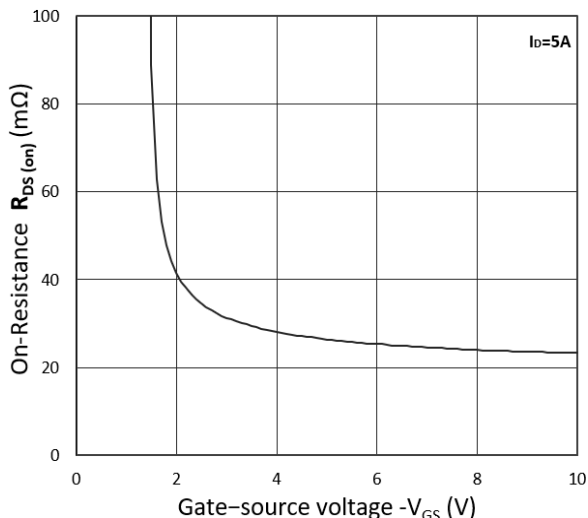


Figure 5.  $I_S$  vs.  $V_{SD}$

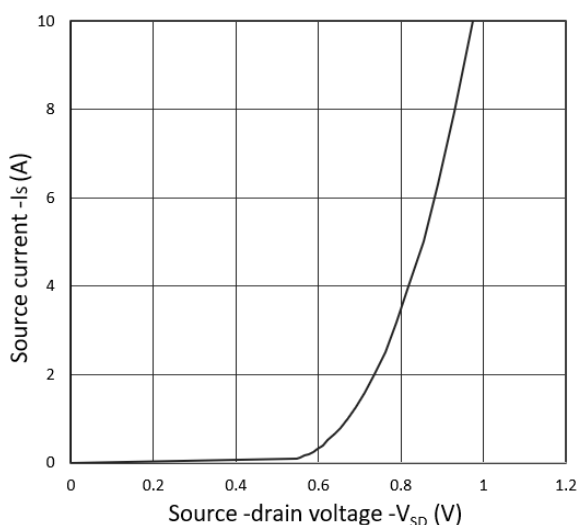
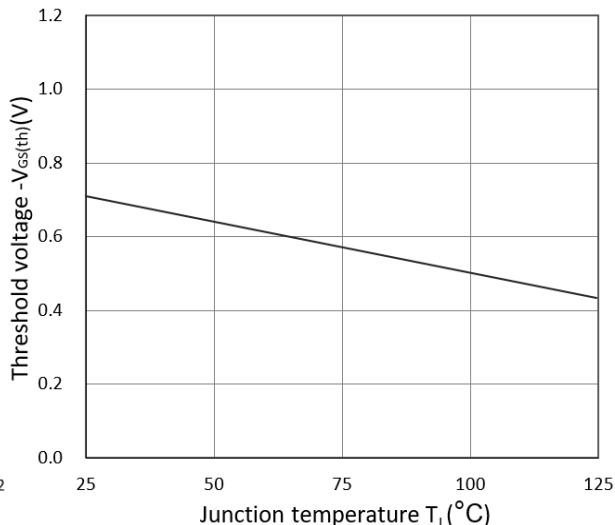


Figure 6.  $V_{GS(th)}$  vs.  $T_J$



### Outline Drawing – SOT-23

#### PACKAGE OUTLINE

DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0	8°	0	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

#### 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	WM02P56M
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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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.