

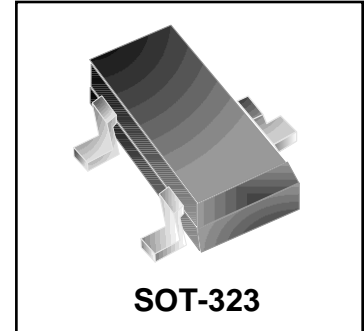


# WM05P01G

## P-Channel MOSFET

### Features

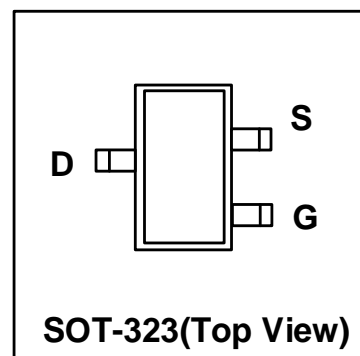
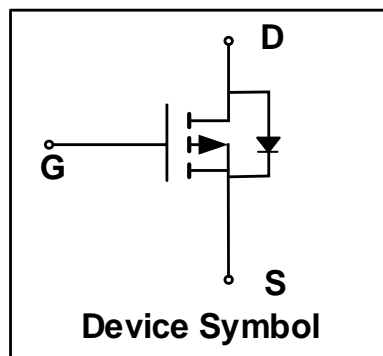
- $V_{DS} = -50V$ ,  $I_D = -0.13A$   
 $R_{DS(on)} < 6.0\Omega$  @  $V_{GS} = -10V$   
 $R_{DS(on)} < 7.0\Omega$  @  $V_{GS} = -4.5V$
- High Speed Switching
- Low Threshold Voltage
- Energy Efficient



### Mechanical Characteristics

- SOT-323 Package
- Marking : Making Code
- RoHS Compliant

### Schematic & PIN Configuration



### Absolute Maximum Rating

Rating	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	-50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	-0.13	A
Pulsed Drain Current <sup>1</sup> @ $t_p < 10\mu s$	$I_{DM}$	-0.52	
Power Dissipation	$P_D$	0.225	W
Thermal Resistance from Junction to Ambient <sup>2</sup>	$R_{\theta JA}$	556	$^{\circ}C/W$
Operating Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}C$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-50	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-50V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 1$	$\mu A$
Gate-Source Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.8	-1.5	-2.5	V
Drain-Source on-State Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-0.1A$	-	1.7	6.0	$\Omega$
		$V_{GS}=-4.5V, I_D=-0.1A$	-	2.0	7.0	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=-5V,$ $f=1.0\text{MHz}$	-	40	-	$\mu F$
Output Capacitance	$C_{oss}$		-	9	-	
Reverse Transfer Capacitance	$C_{rss}$		-	4.7	-	
<b>Switching Characteristics</b>						
Turn-On Delay Time <sup>4</sup>	$t_{d(on)}$	$V_{DD}=-15V, I_D=-2.5A, R_L=50\Omega$	-	2.5	-	nS
Rise Time <sup>4</sup>	$t_r$		-	1	-	
Turn-Off Delay Time <sup>4</sup>	$t_{d(off)}$		-	16	-	
Fall Time <sup>4</sup>	$t_f$		-	8	-	
<b>Drain-Source Body Diode Characteristics</b>						
Diode Forward Voltage	$V_{SD}$	$I_S=-0.1A, V_{GS}=0V$	-	-	-1.3	V

## Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 2\%$ .
4. Guaranteed by design, not subject to production.

### Typical Characteristics

Figure 1. Output Characteristics

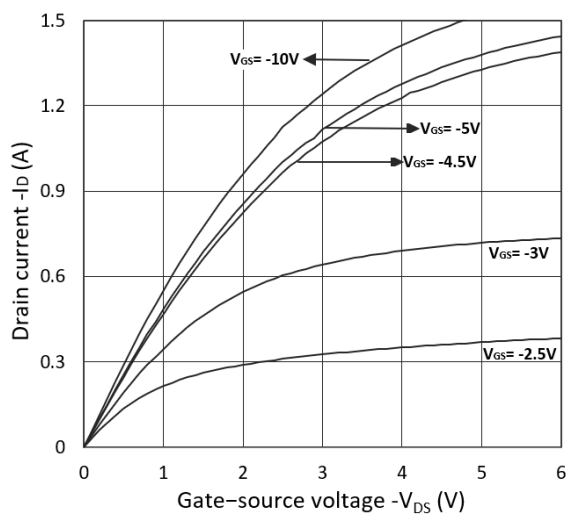


Figure 2. Transfer Characteristics

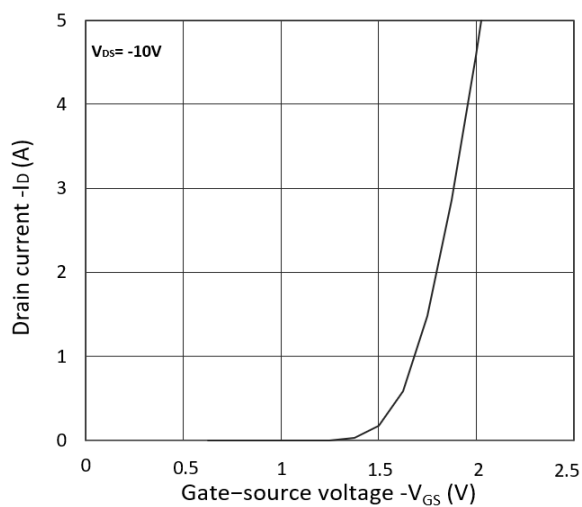


Figure 3.  $R_{DS(ON)}$  vs.  $I_D$

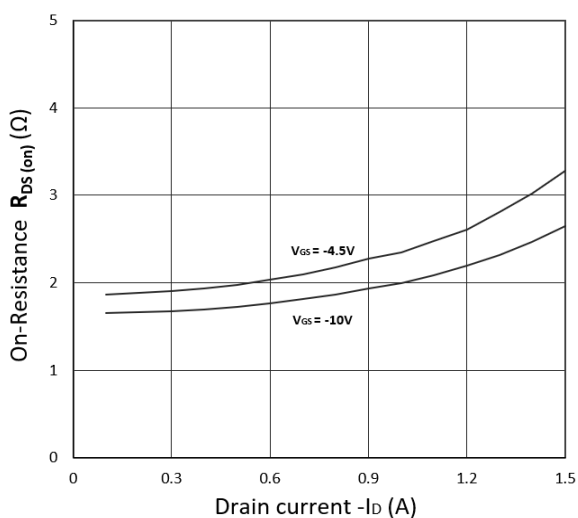


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

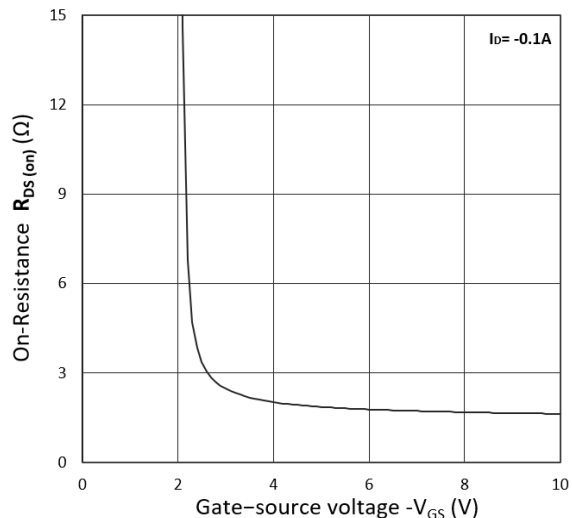


Figure 5.  $I_S$  vs.  $V_{SD}$

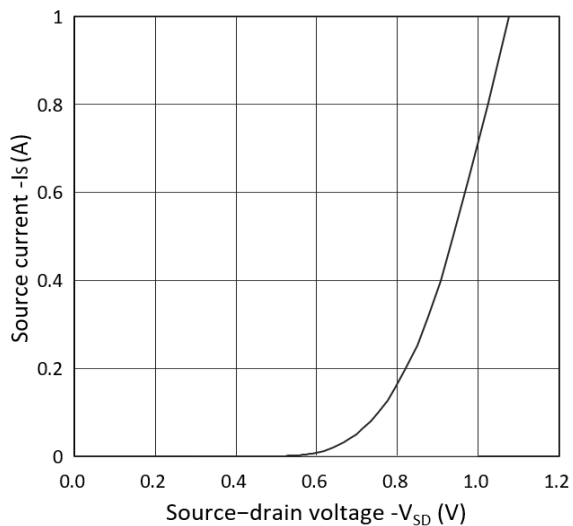
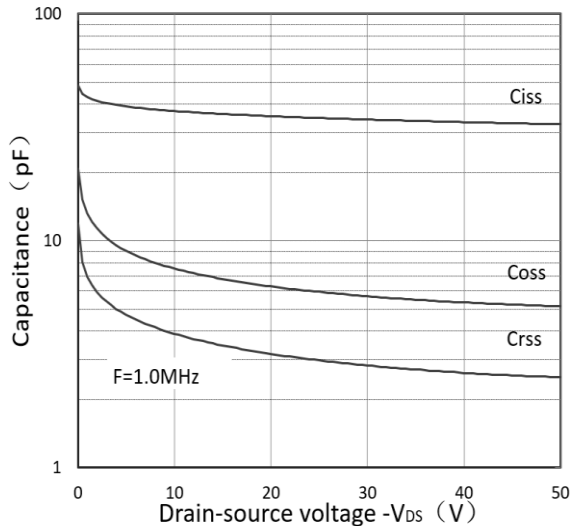


Figure 6. Capacitance Characteristics



### Outline Drawing – SOT-323

#### PACKAGE OUTLINE

**SOT-323**

SYMBOL	MILLIMETER		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
D	2.000	2.200	0.079	0.087
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
E	2.150	2.450	0.085	0.096
E1	1.150	1.350	0.045	0.053
e	0.650TYP		0.026TYP	
L	0.525 REF		0.021 REF	
θ	0	8°	0	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.076	1.90
C	0.036	0.9
Z	0.108	2.7
e	0.026	0.65
e1	0.052	1.30
b	0.028	0.7

**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	WM05P01G
Marking Code	

### Package Information

Qty: 3k/Reel

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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.