



WM02P60M2

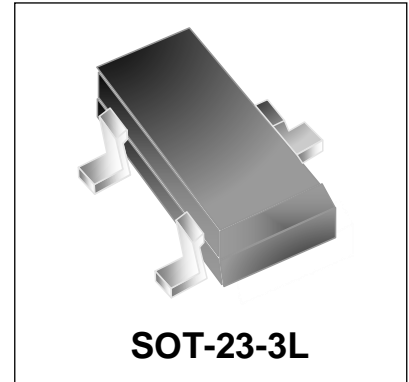
P-Channel MOSFET

Features

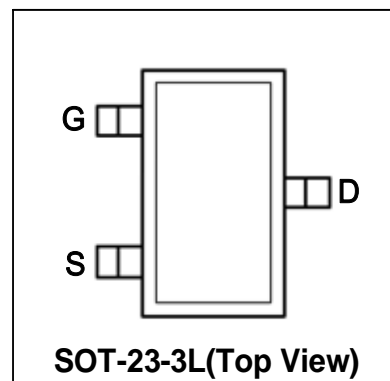
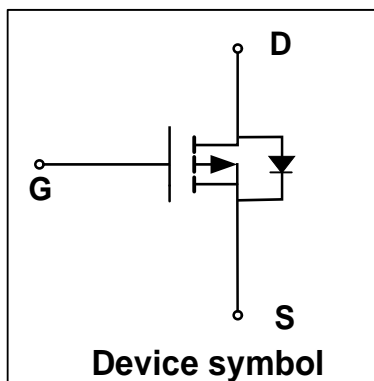
- $V_{DS} = -20\text{ V}$, $I_D = -6\text{ A}$
 $R_{DS(on)} < 23\text{ m}\Omega$ @ $V_{GS} = -4.5\text{ V}$
 $R_{DS(on)} < 34\text{ m}\Omega$ @ $V_{GS} = -2.5\text{ V}$
- Super High Density Cell Design for Extremely Low $R_{DS(on)}$
- Exceptional On-Resistance and Maximum DC Current Capability

Mechanical Characteristics

- SOT-23-3L 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}	± 10		
Continuous Drain Current	I_D	$T_A = 25^\circ\text{C}$	-6	A
		$T_A = 70^\circ\text{C}$	-3.1	
Power Dissipation	P_D	$T_A = 25^\circ\text{C}$	0.35	W
		$T_A = 70^\circ\text{C}$	0.8	
Pulsed Drain Current($t=300\mu\text{s}$)	I_{DM}	-20	A	
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	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
Static Characteristics						
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	μA
Gate-Source Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$	-	-	± 100	nA
Gate-Source Threshold Voltage ²	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.6	-1.0	V
Drain-Source On-State Resistance ²	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-5A$	-	17	23	m Ω
		$V_{GS}=-2.5V, I_D=-4A$	-	19	30	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-10V,$ $f=1.0\text{MHz}$	-	2750	-	pF
Output Capacitance	C_{oss}		-	320	-	
Reverse Transfer Capacitance	C_{rss}		-	280	-	
Switching Characteristics						
Turn-on delay time ³	$t_{d(on)}$	$V_{DS}=-15V, V_{GS}=-10V,$ $I_D=-6A, R_{GEN}=2.5\Omega$	-	14	-	ns
Rise time ³	t_r		-	20	-	
Turn-off delay time ³	$t_{d(off)}$		-	95	-	
Fall Time ³	t_f		-	65	-	
Total Gate Charge	Q_g	$V_{GS}=-10V, V_{DS}=-15V,$ $I_D=-9.1A$	-	30	-	nC
Gate-Source Charge	Q_{gs}		-	5.3	-	
Gate-Drain Charge	Q_{gd}		-	7.6	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$I_S=-1A, V_{GS}=0V$	-	-	-1.2	V

Notes:

1. Surface Mounted on FR4 Board, $t \leq 10$ sec.
2. Pulse test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
3. Guaranteed by design, not subject to production

Typical Characteristics

Figure 1. Output Characteristics

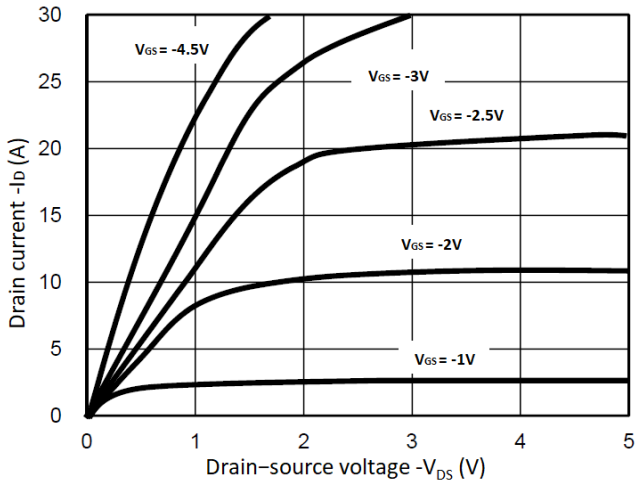


Figure 2. $R_{DS(on)}$ vs. I_D

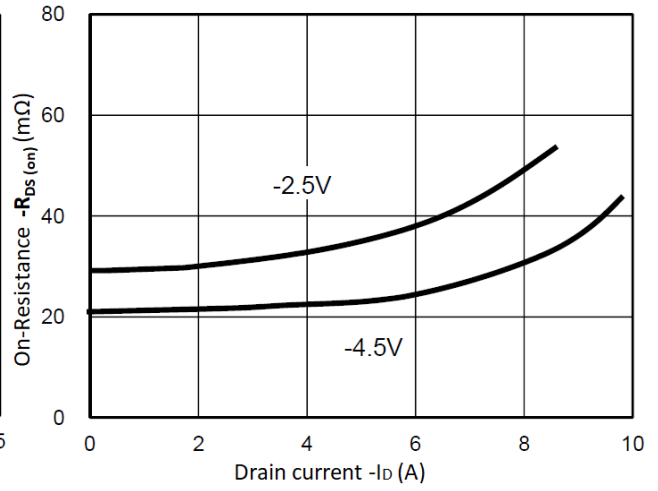


Figure 3. Normalized $R_{DS(on)}$ vs. T_J

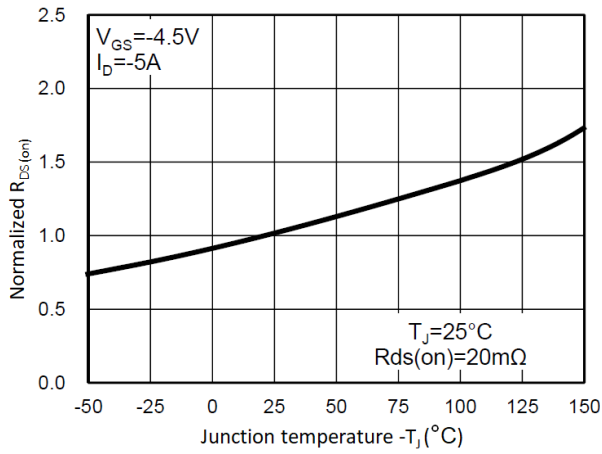


Figure 4. Capacitance Characteristics

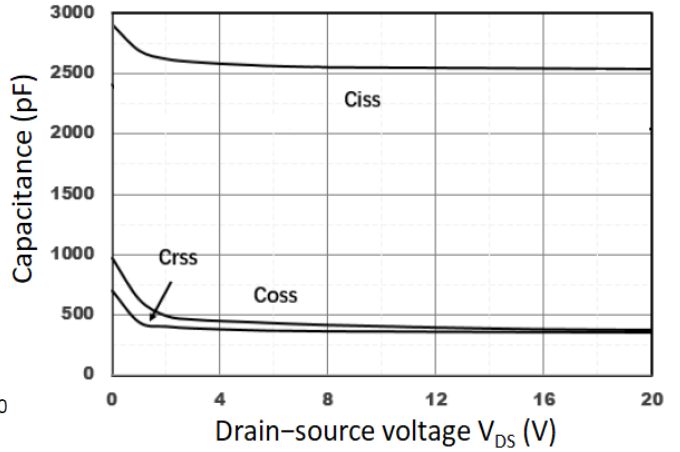


Figure 5. Forward Characteristics of Reverse

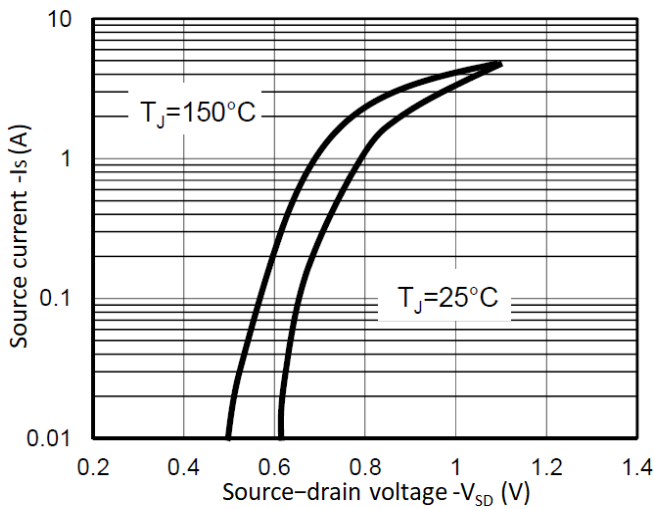
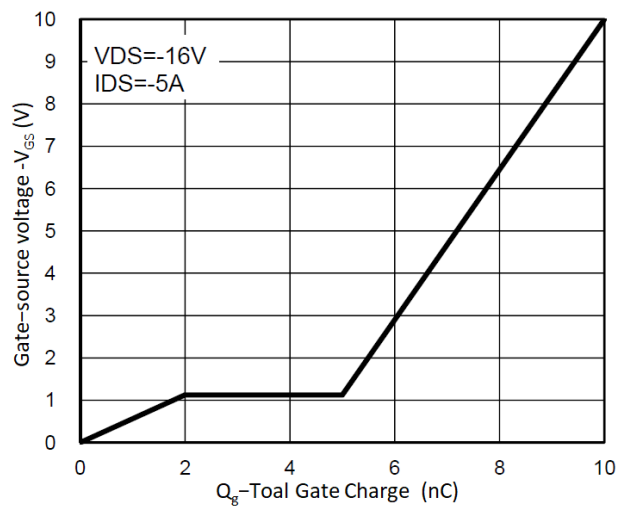


Figure 6. Gate Charge Characteristics



Outline Drawing – SOT-23-3L

PACKAGE OUTLINE

SOT-23-3L

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.05	1.15	0.041	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.82	3.02	0.111	0.119
E	2.65	2.95	0.104	0.116
E1	1.50	1.70	0.059	0.067
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.55	0.75	0.021	0.029
θ	0	8	0	8

Unit:mm

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

Part Number	WM02P60M2
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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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.*