

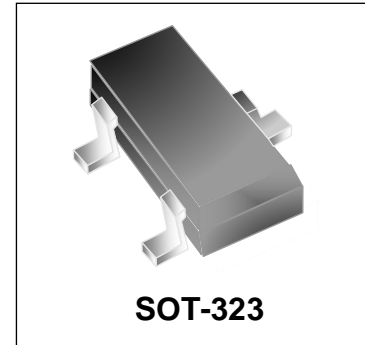
## N-Channel Enhancement MOSFET

### Features

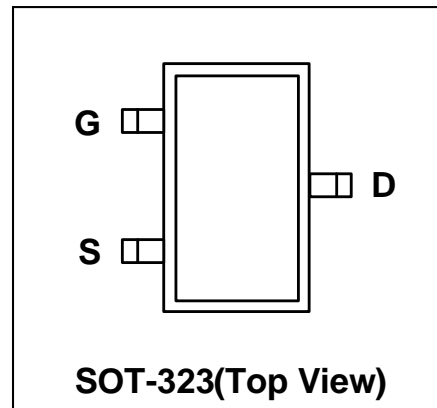
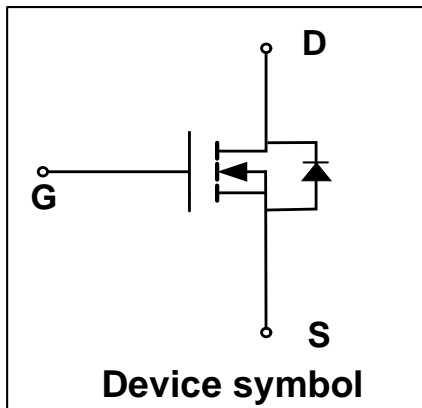
- Way-on Small Signal MOSFETs
- $V_{DS} = 20V$ ,  $I_D = 2A$   
 $R_{DS(on)} < 55m\Omega @ V_{GS} = 4.5V$   
 $R_{DS(on)} < 80m\Omega @ V_{GS} = 2.5V$
- Trench LV MOSFET Technology

### Mechanical Characteristics

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



### Schematic & PIN Configuration



### Absolute Maximum Rating ( $T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$I_D$	2	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	8	A
Power Dissipation	$P_D$	350	mW
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient <sup>2</sup>	$R_{\theta JA}$	357.1	$^\circ C/W$

**Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250μA	20	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate-Source Leakage	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V	-	-	±100	nA
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 250μA	0.4	0.85	1.2	V
Drain-Source on-State Resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 2A	-	40	55	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 1.5A	-	55	80	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 10V, f = 1 MHz	-	220	-	pF
Output Capacitance	C <sub>oss</sub>		-	37	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	30	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total gate charge	Q <sub>g</sub>	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 10V, I <sub>D</sub> = 2A	-	2.6	-	nC
Gate-source charge	Q <sub>gs</sub>		-	0.5	-	
Gate-drain charge	Q <sub>gd</sub>		-	0.7	-	
Turn-on Time	t <sub>d(on)</sub>	V <sub>GS</sub> = 4.5V, V <sub>DD</sub> = 10V, R <sub>G</sub> = 3Ω, I <sub>D</sub> = 2A	-	3.3	-	ns
Rise Time	t <sub>r</sub>		-	3.8	-	
Turn-off Time	t <sub>d(off)</sub>		-	5.7	-	
Fall Time	t <sub>f</sub>		-	3.2	-	
<b>Source-Drain Diode Characteristics</b>						
Body Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> = 1A, V <sub>GS</sub> = 0V	-	-	1.2	V
Continuous Source Current	I <sub>S</sub>	-	-	-	2	A

**Notes:**

1. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C.
2. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width≤300μs, duty cycle≤2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

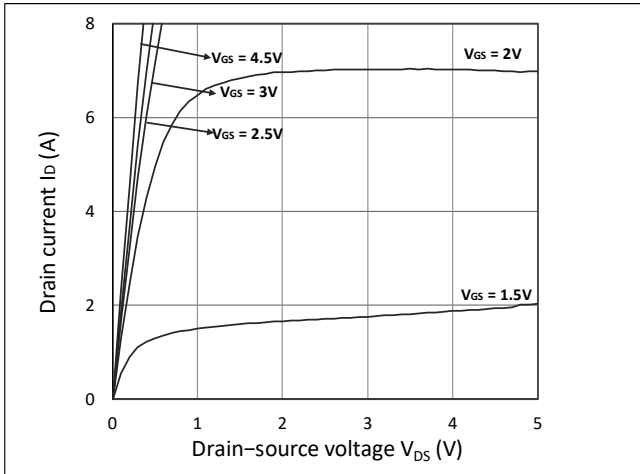


Figure 1. Output Characteristics

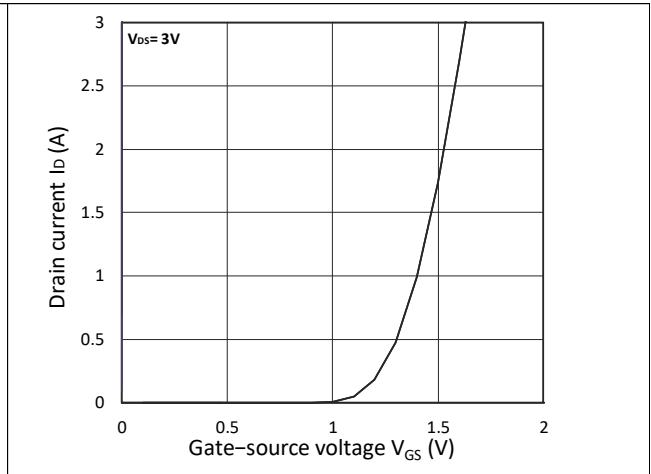


Figure 2. Transfer Characteristics

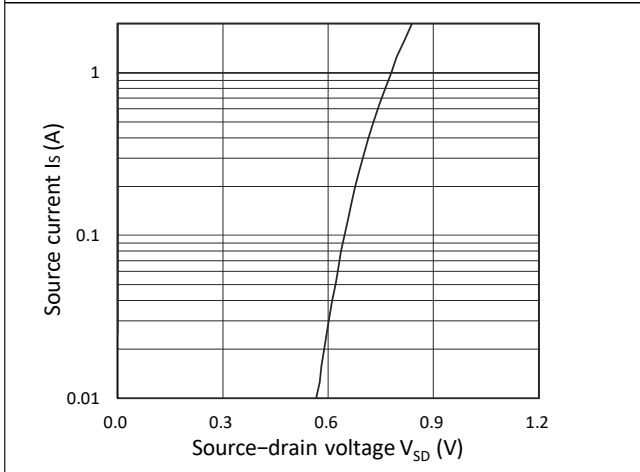


Figure 3. Forward Characteristics of Reverse

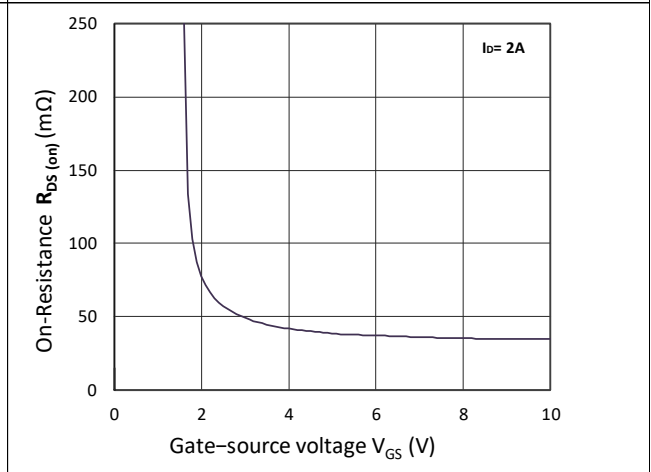


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

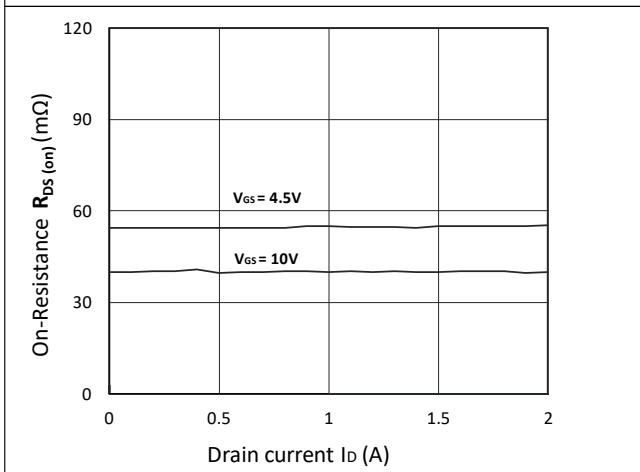


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

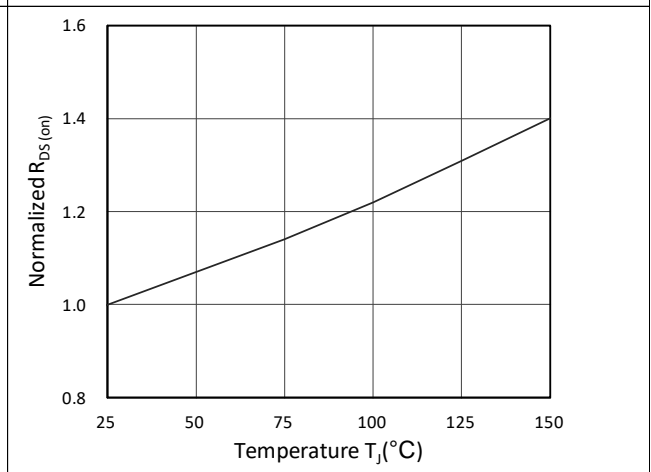


Figure 6. Normalized  $R_{DS(ON)}$  vs. Temperature

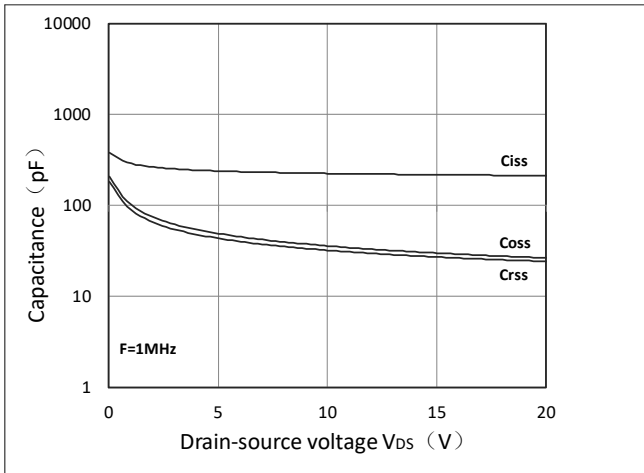


Figure 7. Capacitance Characteristics

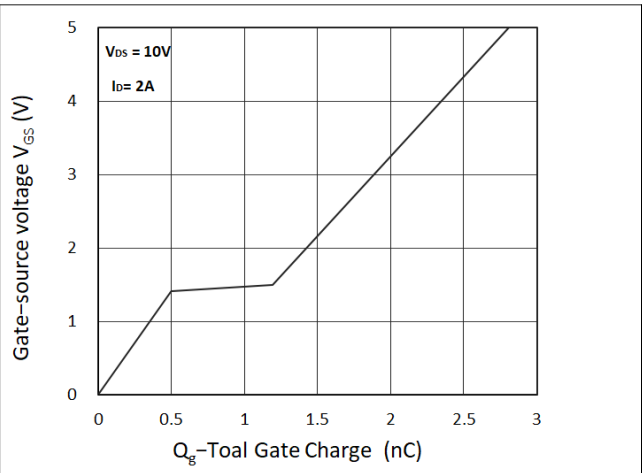
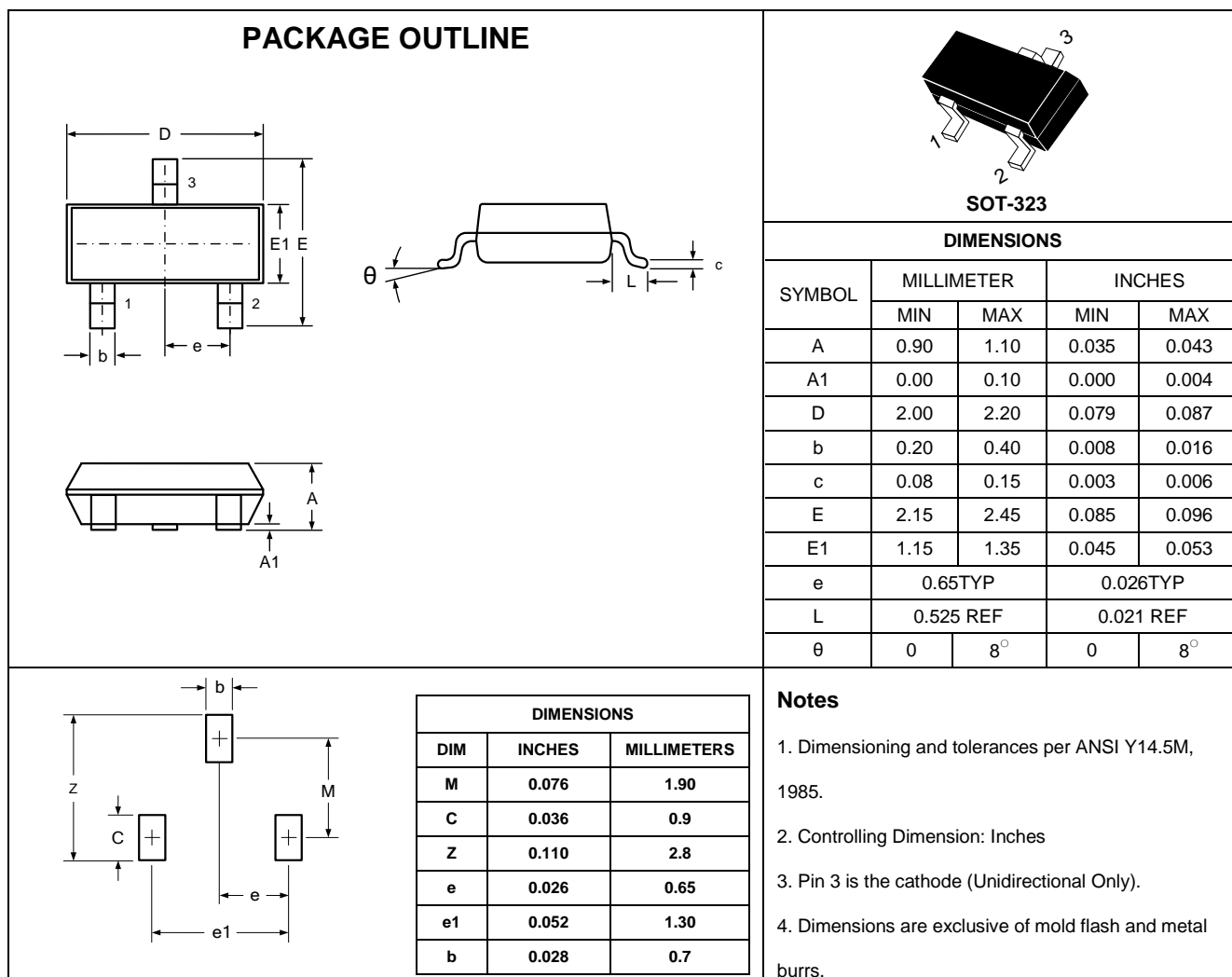
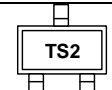


Figure 8. Gate Charge Characteristics

## Outline Drawing – SOT-323



## Marking Codes

Part Number	WM02N20G
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.*