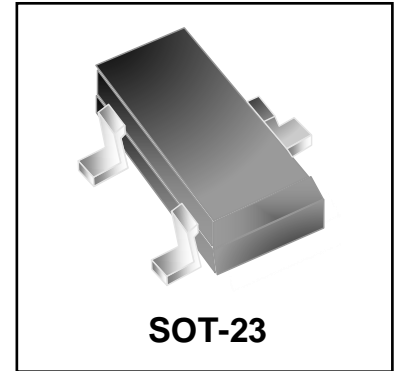


### Features

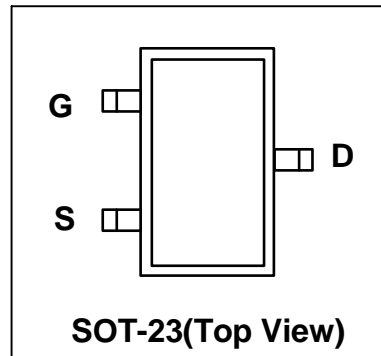
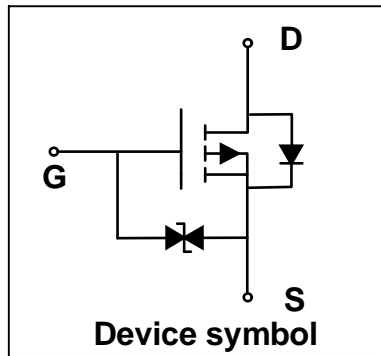
- Way-on Small Signal MOSFETs
- $V_{DS} = -20V$ ,  $I_D = -4A$   
 $R_{DS(on)} < 39m\Omega @ V_{GS} = -4.5V$   
 $R_{DS(on)} < 50m\Omega @ V_{GS} = -2.5V$
- Trench LV MOSFET Technology
- ESD Protected

### Mechanical Characteristics

- SOT-23 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	$I_D$	-4	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	-16	A
Power Dissipation	$P_D$	1.08	W
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>	$R_{\theta JA}$	115	$^\circ C/W$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20	-	-	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±10V	-	-	±10	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V	-	-	-1	μA
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.35	-0.65	-0.9	V
Drain-Source on-Resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A	-	32	39	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3A	-	42	50	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2A	-	62	82	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -10V, f=1MHz	-	1022	-	pF
Output Capacitance	C <sub>oss</sub>		-	123	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	105	-	
<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> = -4A	-	9.5	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1.2	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	2.3	-	
Turn-on Delay 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> = -4A	-	11	-	ns
Rise Time	t <sub>r</sub>		-	9.5	-	
Turn-off Delay Time	t <sub>d(off)</sub>		-	18	-	
Fall Time	t <sub>f</sub>		-	24	-	
<b>Drain-Source Body Diode Characteristics</b>						
Body Diode voltage <sup>3</sup>	V <sub>DS</sub>	I <sub>S</sub> = -1A, V <sub>GS</sub> =0V	-	-	-1	V
Continuous Source Current	I <sub>S</sub>	-	-	-	-4	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

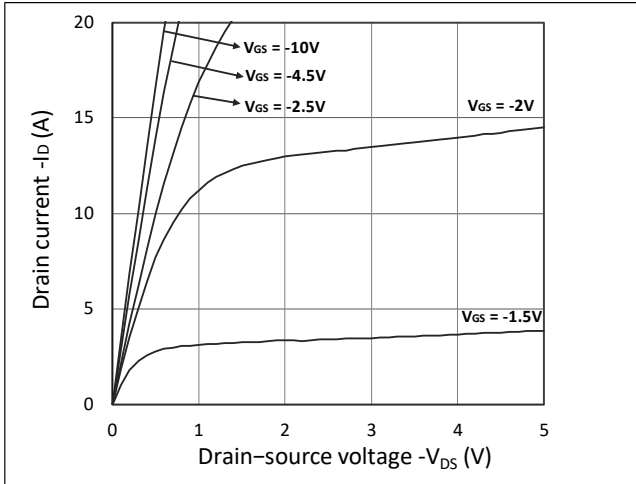


Figure 1. Output Characteristics

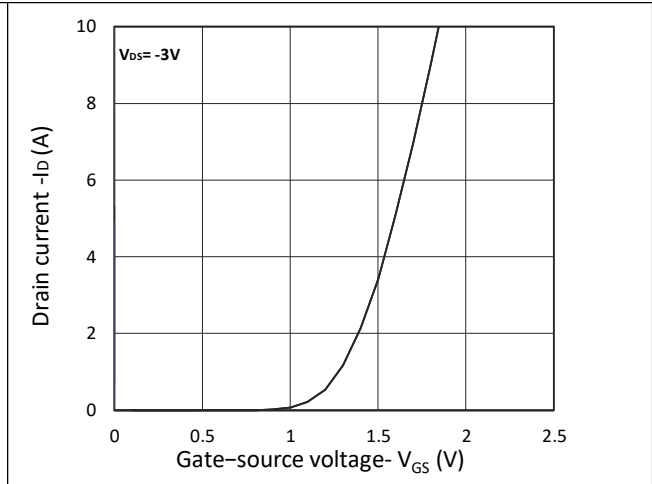


Figure 2. Transfer Characteristics

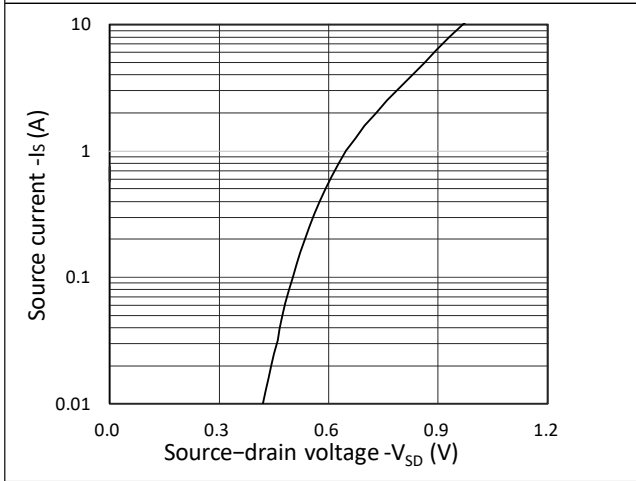


Figure 3. Forward Characteristics of Reverse

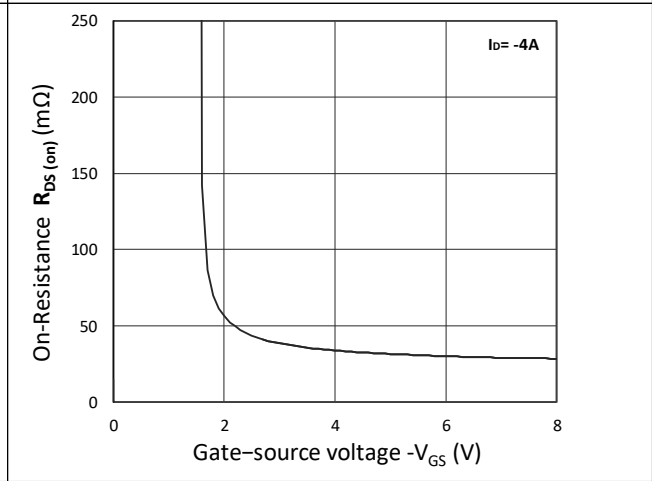


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

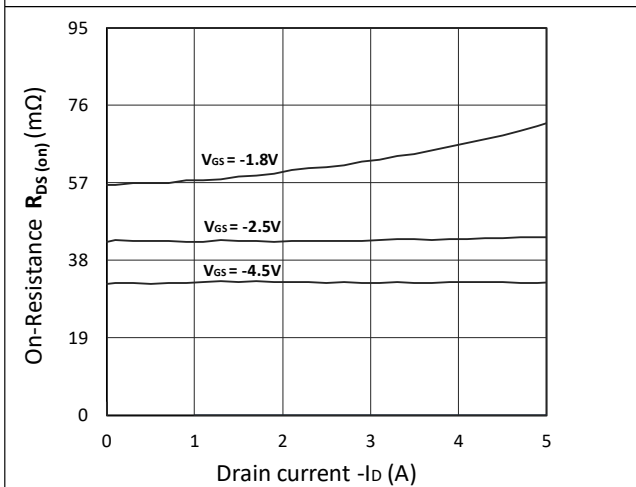


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

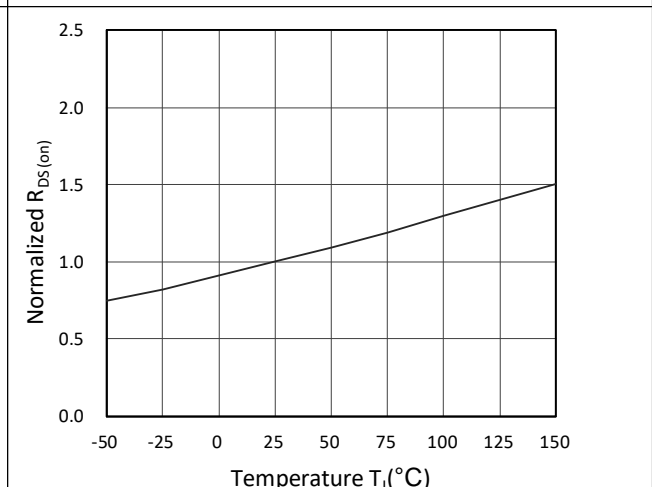


Figure 6. Normalized  $R_{DS(ON)}$  vs. Temperature

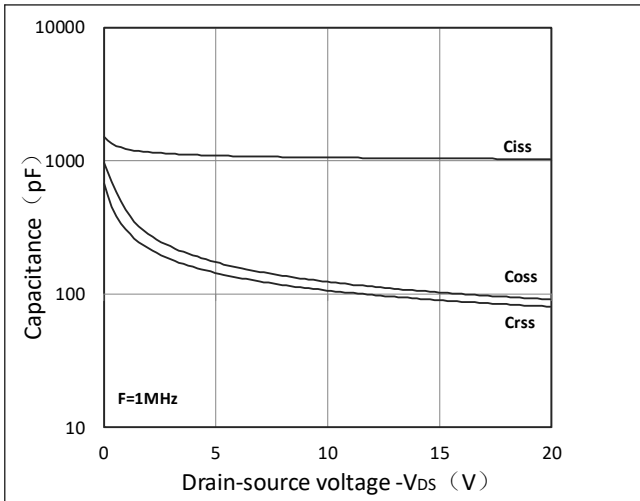


Figure 7. Capacitance Characteristics

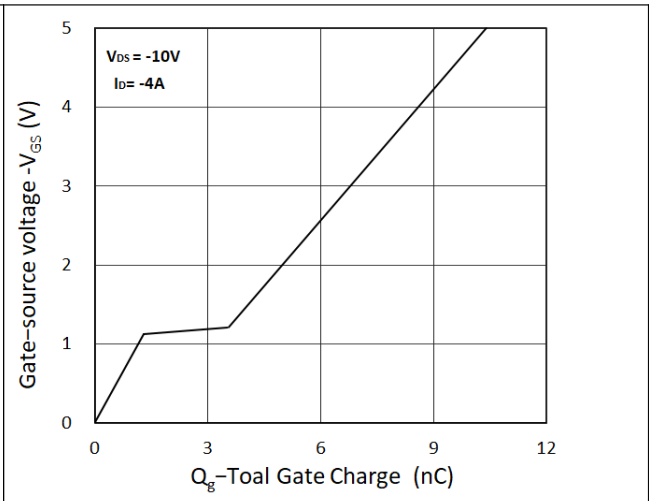
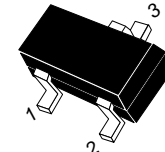
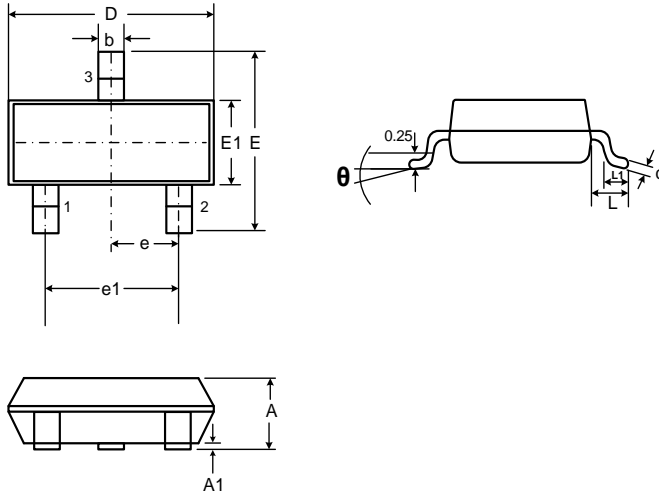


Figure 8. Gate Charge Characteristics

### Outline Drawing – SOT-23

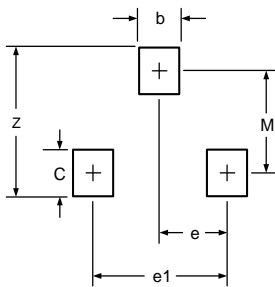
#### PACKAGE OUTLINE



SOT-23

#### 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		0.037BSC	
e1	1.80	2.00	0.071	0.079
L	0.55REF		0.022REF	
L1	0.30	0.50	0.012	0.020
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	WM02P40ME
Marking Code	

### Package Information

Qty: 3k/Reel

### CONTACT INFORMATION

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WAYON website: <http://www.way-on.com>

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