

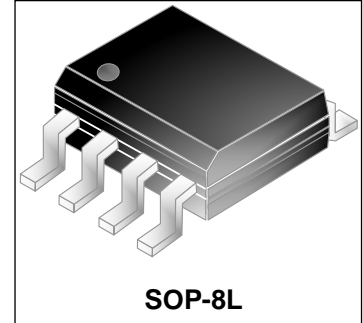


# WM03DN85A

## Dual N-Channel MOSFET

### Features

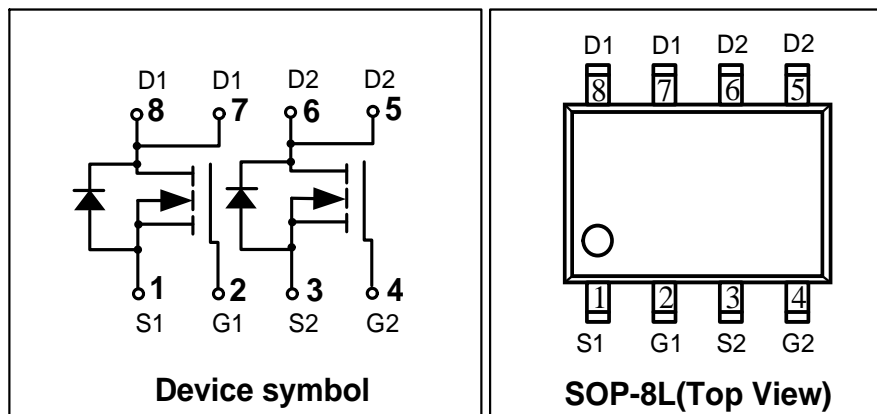
- $V_{DS} = 30V$ ,  $I_D = 8.5A$   
 $R_{DS(on)} < 23m\Omega @ V_{GS} = 10V$   
 $R_{DS(on)} < 32m\Omega @ V_{GS} = 4.5V$
- Trench Power MOSFET
- Fast Switching Speed
- Low On-Resistance
- Green Device Available



### Mechanical Characteristics

- SOP-8L Package
- Marking : Making Code
- RoHS Compliant

### Schematic & PIN Configuration



### Absolute Maximum Rating

Parameter	Symbol	Value	Unit	
Drain-Source Breakdown Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V	
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	8.5	A
		$T_A = 70^\circ C$	6.8	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	34	A	
Power Dissipation	$P_D$	2.5	W	
Junction Temperature	$T_J$	150	$^\circ C$	
Storage Temperature	$T_{STG}$	-55 to +150	$^\circ C$	
Thermal Resistance from Junction to Ambient <sup>2</sup>	$R_{\theta JA}$	50	$^\circ C/W$	

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30V, V_{GS} = 0V$	-	-	1	$\mu A$
Gate-body Leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA
Gate-Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.2	V
Drain-Source on-Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8.5A$	-	19	23	m $\Omega$
		$V_{GS} = 4.5V, I_D = 6A$	-	25	32	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V,$ $f = 1MHz$	-	520	-	pF
Output Capacitance	$C_{oss}$		-	70	-	
Reverse Transfer Capacitance	$C_{rss}$		-	56	-	
<b>Switching Characteristics</b>						
Total Gate Charge <sup>4</sup>	$Q_g$	$V_{GS} = 4.5V, V_{DS} = 15V,$ $I_D = 8.5A$	-	5.2	-	nC
Gate-Source Charge <sup>4</sup>	$Q_{gs}$		-	0.9	-	
Gate-Drain Charge <sup>4</sup>	$Q_{gd}$		-	13	-	
Turn-on Delay Time <sup>4</sup>	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DD} = 15V,$ $R_{GEN} = 2.8\Omega, I_D = 8.5A,$	-	4.5	-	nS
Rise Time <sup>4</sup>	$t_r$		-	2.5	-	
Turn-off Delay Time <sup>4</sup>	$t_{d(off)}$		-	14.5	-	
Fall Time <sup>4</sup>	$t_f$		-	3.5	-	
<b>Source-Drain Diode characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$I_S = 1A, V_{GS} = 0V$	-	-	1.2	V

**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface mounted on FR4 board using 1 square inch pad size, 1oz single-side copper.
3. Pulse Test: Pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$ .
4. Guaranteed by design, not subject to product

Typical Characteristics

Figure 1. Output Characteristics

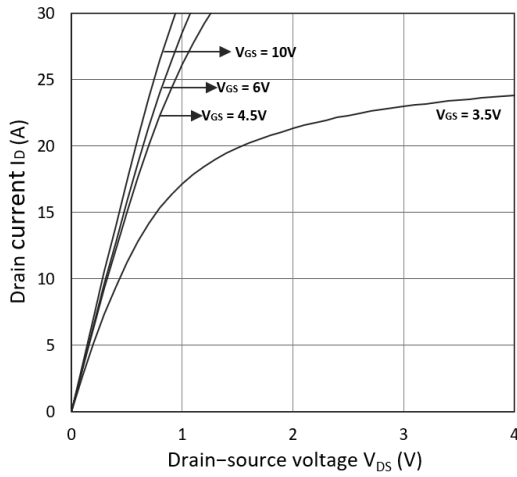


Figure 2. Transfer Characteristics

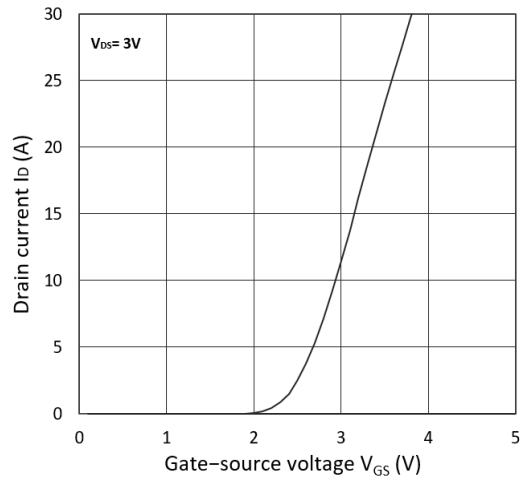


Figure 3.  $R_{DS(on)}$  vs.  $I_D$

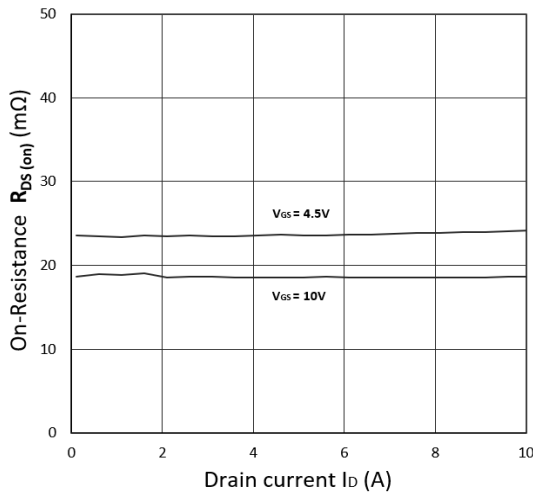


Figure 4.  $R_{DS(on)}$  vs.  $V_{GS}$

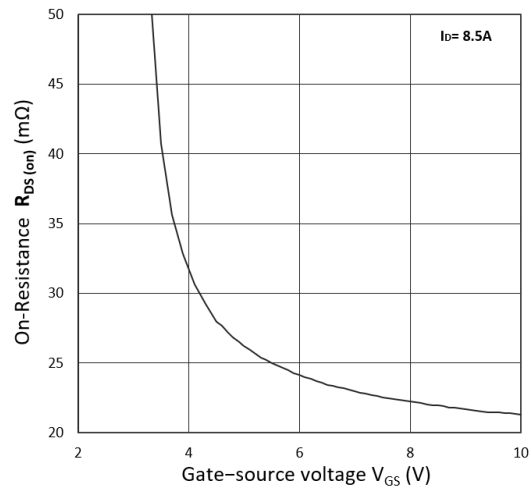


Figure 5.  $I_S$  vs.  $V_{SD}$

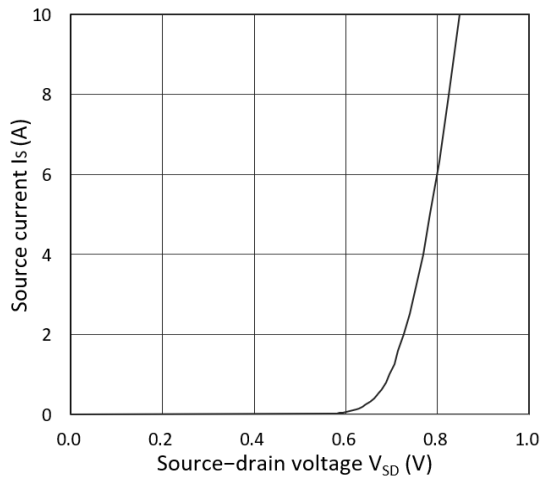
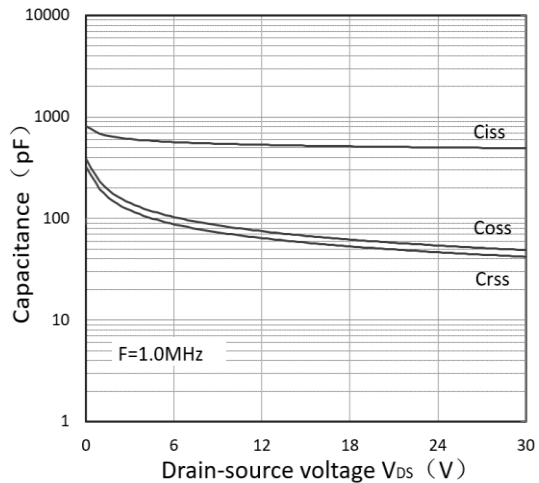


Figure 6. Capacitance Characteristics



Outline Drawing – SOP-8L

**PACKAGE OUTLINE**

SOP-8L

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.23	1.75	0.048	0.069
a1	0.05	0.25	0.002	0.010
b	0.31	0.51	0.012	0.020
b1	0.16	0.25	0.006	0.010
D	4.70	5.15	0.185	0.203
E	5.75	6.25	0.226	0.246
e	1.07	1.47	0.042	0.058
F	3.70	4.10	0.146	0.161
L	0.40	1.27	0.016	0.050

**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	WM03DN85A
Marking Code	

Package Information

Qty: 4k/Reel

CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201202

Tel: 86-21-68969993 Fax: 86-21-50757680 Email: [market@way-on.com](mailto:market@way-on.com)

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

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.