

Dual N-Channel Enhancement MOSFET

Description

WM02DN70A uses advanced trench technology that has been especially tailored to minimize the on-state resistance. This device is suitable for un-directional or bidirectional load switch, facilitated by its common-drain configuration.

$V_{(BR)DSS}(V)$	$I_D(A)$	$R_{DS(on)TYP}(m\Omega)$
20	7	11 @ $V_{GS}=10V$
		12 @ $V_{GS}=4.5V$
		15 @ $V_{GS}=2.5V$

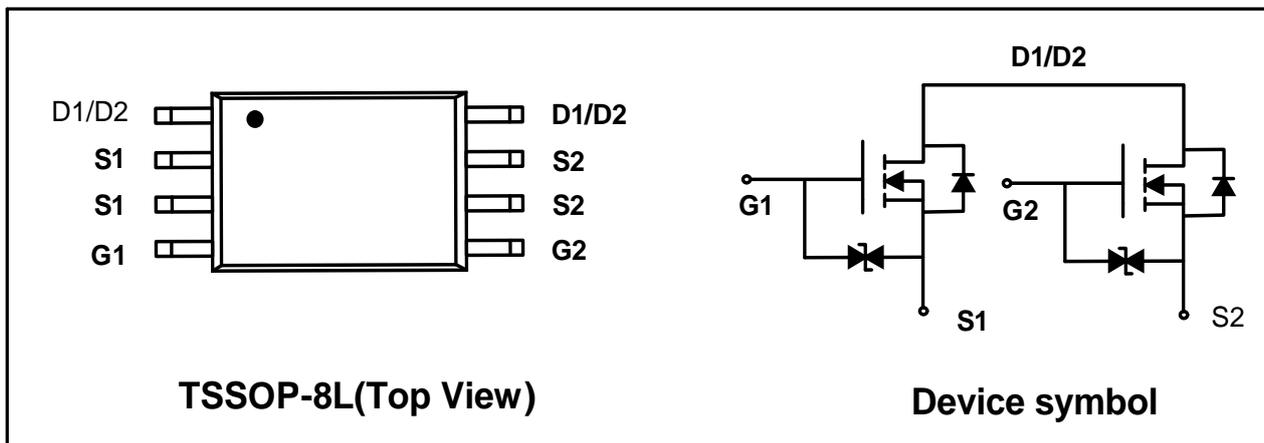
Features

- Super high dense cell for low $R_{DS(ON)}$
- RoHS Compliant and Halogen-Free
- ESD protected: Class 1C

Applications

- Battery protection
- Load switch

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}	± 10	V
Continuous Drain Current	I_D	$T_A=25^\circ C$	7
		$T_A=100^\circ C$	4.4
Pulsed Drain Current ¹	I_{DM}	28	A
Total Power Dissipation	P_D	2	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 ²	$R_{\theta JA}$	62.5	$^\circ C/W$

Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V_{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V _{DS} = 20V, V _{GS} = 0V	-	-	1	μA
Gate-body Leakage current	I_{GSS}	V _{DS} = 0V, V _{GS} = ±10V	-	-	±10	μA
Gate-Threshold Voltage	V_{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.75	1	V
Drain-Source on-Resistance ³	R_{DS(on)}	V _{GS} = 10V, I _D = 5A	-	11	13.5	mΩ
		V _{GS} = 4.5V, I _D = 4A	-	12	15.5	
		V _{GS} = 2.5V, I _D = 3A	-	15	18.5	
Dynamic Characteristics⁴						
Input Capacitance	C_{iss}	V _{DS} = 10V, V _{GS} = 0V, f = 1MHz	-	690	-	pF
Output Capacitance	C_{oss}		-	110	-	
Reverse Transfer Capacitance	C_{rss}		-	95	-	
Switching Characteristics⁴						
Total Gate Charge	Q_g	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 5A	-	8.8	-	nC
Gate-Source Charge	Q_{gs}		-	1.3	-	
Gate-Drain Charge	Q_{gd}		-	2.4	-	
Turn-on Delay Time	t_{d(on)}	V _{GS} = 4.5V, V _{DD} = 10V R _G = 3Ω, I _D = 5A	-	5.2	-	ns
Rise Time	t_r		-	4.7	-	
Turn-off Delay Time	t_{d(off)}		-	7.9	-	
Fall Time	t_f		-	6	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ³	V_{SD}	I _S = 1A, V _{GS} = 0V	-	-	1	V
Continuous Source Current	I_S	-	-	-	7	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The data tested by surface mounted on a 1 inch2 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

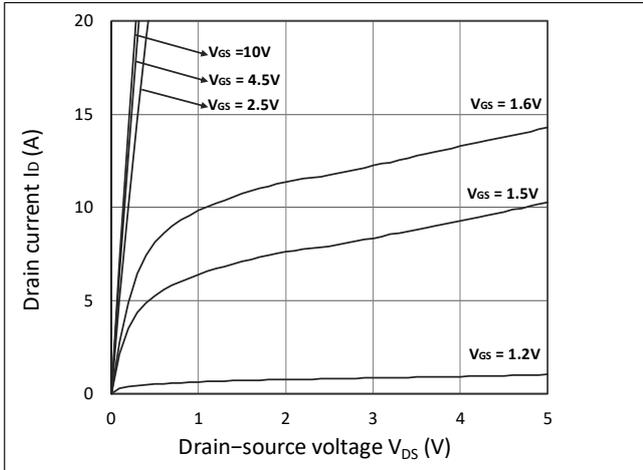


Figure 1. Output Characteristics

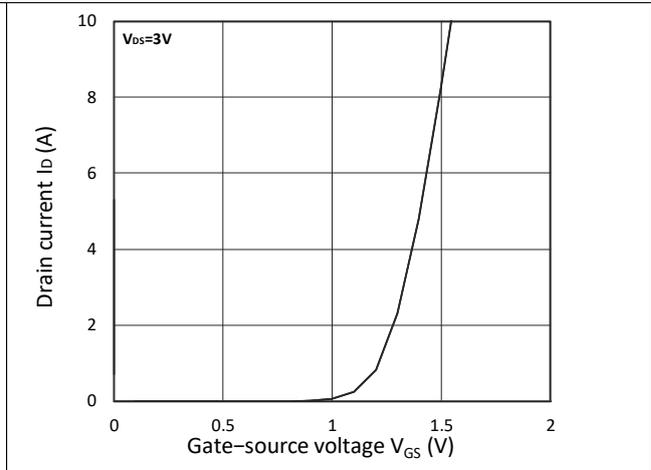


Figure 2. Transfer Characteristics

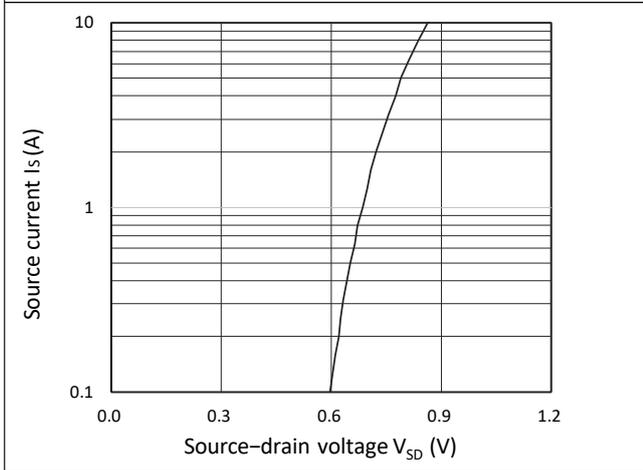


Figure 3. Forward Characteristics of Reverse

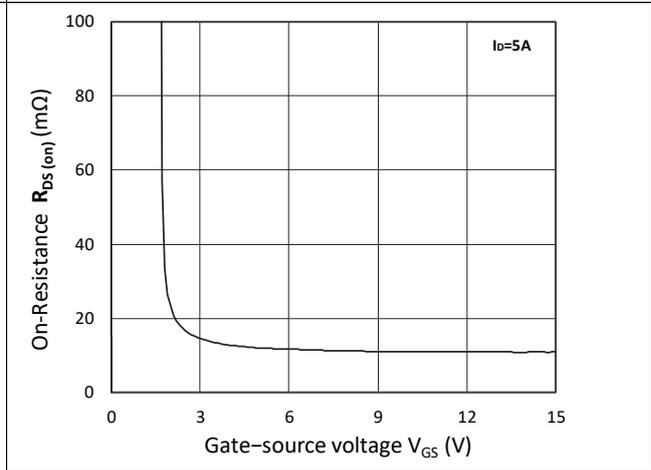


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

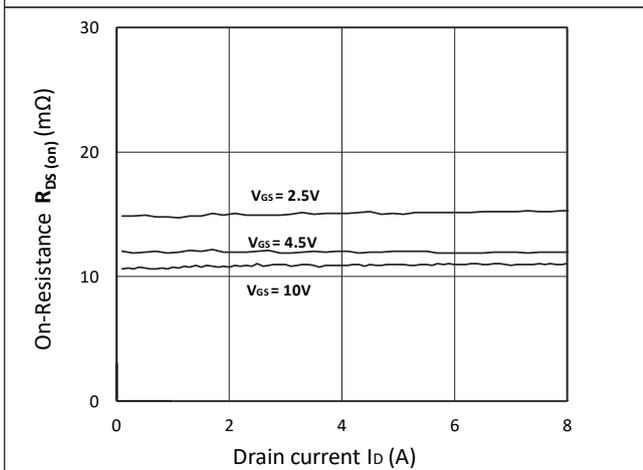


Figure 5. $R_{DS(ON)}$ vs. I_D

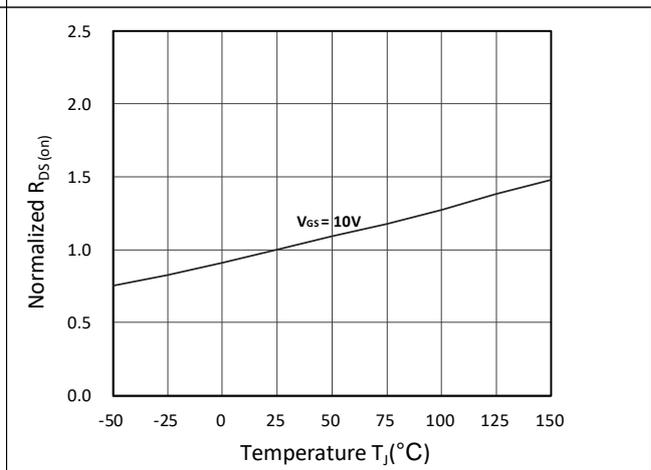


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

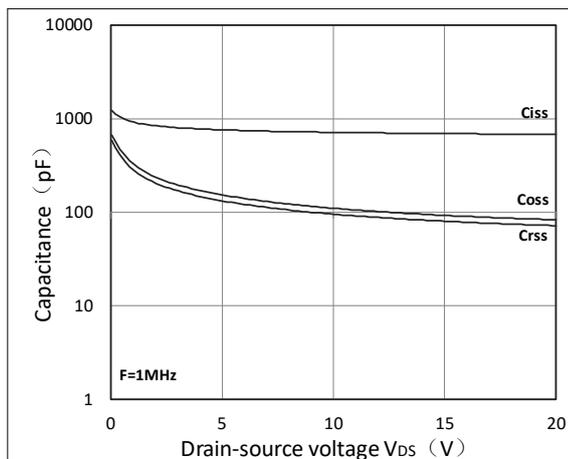


Figure 7. Capacitance Characteristics

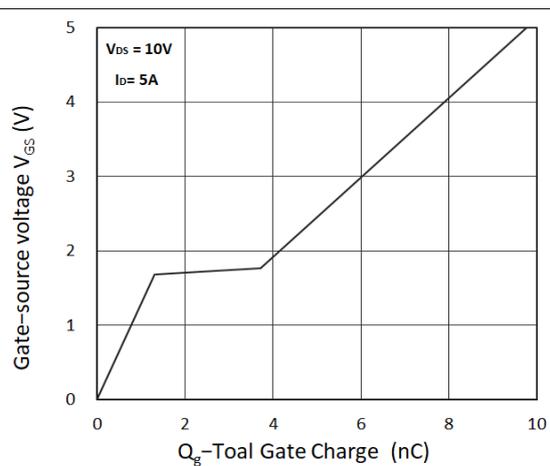
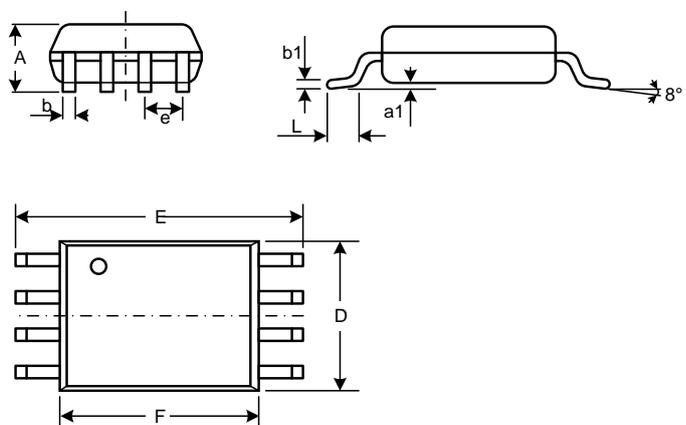
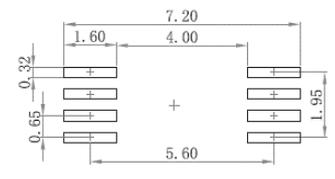
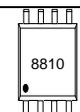


Figure 8. Gate Charge Characteristics

Outline Drawing –TSSOP-8L

PACKAGE OUTLINE		TSSOP-8L		
				
DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.85	1.20	0.033	0.047
a1	0.05	0.20	0.002	0.008
b	0.18	0.30	0.007	0.012
b1	0.09	0.20	0.004	0.008
D	2.80	3.10	0.110	0.122
E	6.20	6.60	0.244	0.260
e	0.65 BSC		0.026 BSC	
F	4.30	4.50	0.169	0.177
L	0.45	0.75	0.018	0.030
		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	WM02DN70A
Marking Code	

Package Information

Qty: 4k/Reel

CONTACT INFORMATION

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