



WM02DN095C

Dual N-Channel Enhancement Mode MOSFET

Description

WM02DN095C uses advanced power 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	9.5	7.4 @ $V_{GS}=4.5V$
		7.8 @ $V_{GS}=4.0V$
		8.0 @ $V_{GS}=3.7V$
		8.8 @ $V_{GS}=3.1V$
		10.4 @ $V_{GS}=2.5V$

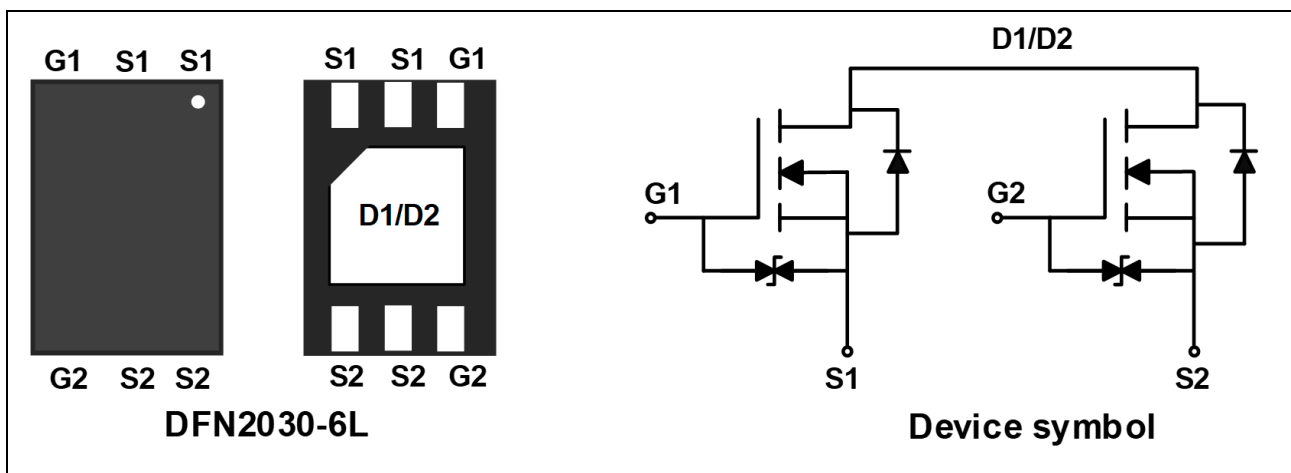
Features

- Super high dense cell for low $R_{DS(ON)}$
- RoHS Compliant and Halogen-Free
- ESD protected: Class 2

Applications

- Battery protection
- Load switch

Schematic & PIN Configuration



Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	20	V
Gate-Source voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A=25^\circ C$	9.5
		$T_A=70^\circ C$	7.6
Pulsed Drain Current ¹	I_{DM}	60	A
Single Pulse Avalanche Energy ⁵	EAS	31	mJ
Avalanche Current	I_{AS}	25	A
Total Power Dissipation	P_D	1.56	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$
Maximum Junction-to-Ambient ²	$R_{\theta JA}$	80	$^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	-	-	V
Gate-body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	-	-	1	μA
Gate-Threshold Voltage ³	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	-	1.5	V
Drain-Source on-Resistance ³	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 5A$	5.4	7.4	9.4	m Ω
		$V_{GS} = 4.0V, I_D = 5A$	5.8	7.8	9.8	
		$V_{GS} = 3.7V, I_D = 5A$	6	8	10	
		$V_{GS} = 3.1V, I_D = 5A$	6.4	8.8	11.2	
		$V_{GS} = 2.5V, I_D = 5A$	8	10.4	12.8	
Forward Transconductance ³	g_{fs}	$V_{DS} = 5V, I_D = 5A$	-	42	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	-	1647	-	pF
Output Capacitance	C_{oss}		-	170	-	
Reverse Transfer Capacitance	C_{rss}		-	148	-	
Switching Characteristics						
Total Gate Charge ⁴	Q_g	$V_{GS} = 4.5V, V_{DS} = 15V, I_D = 5.5A$	-	22	-	nC
Gate-Source Charge ⁴	Q_{gs}		-	3.1	-	
Gate-Drain Charge ⁴	Q_{gd}		-	8.2	-	
Turn-on Delay Time ⁴	$t_{d(on)}$	$V_{GS} = 4.5V, V_{DD} = 15V, R_G = 6\Omega, I_D = 5.5A$	-	10	-	nS
Rise Time ⁴	t_r		-	39.5	-	
Turn-off Delay Time ⁴	$t_{d(off)}$		-	65	-	
Fall Time ⁴	t_f		-	30	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	$I_S = 9.5A, V_{GS} = 0V$	-	-	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
5. The EAS data shows Max. rating . The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=25A$.

Typical Characteristics

Figure 1. Output Characteristics

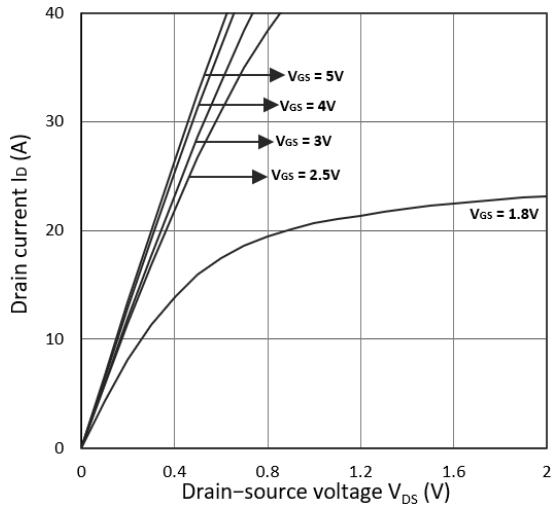


Figure 2. Transfer Characteristics

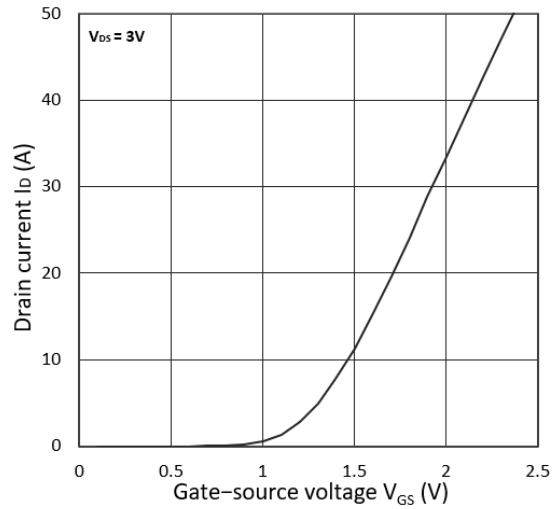


Figure 3. $R_{DS(ON)}$ vs. I_D

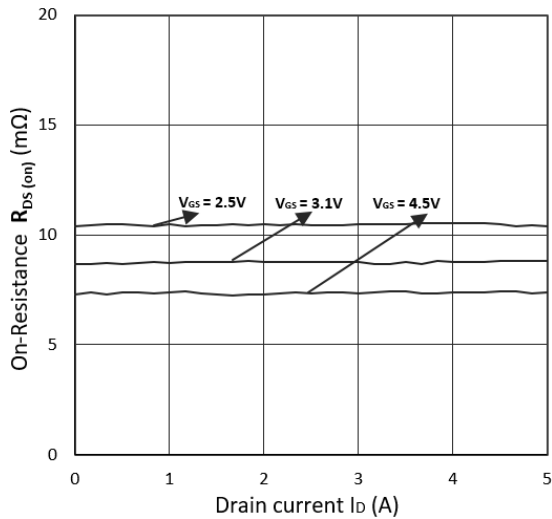


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

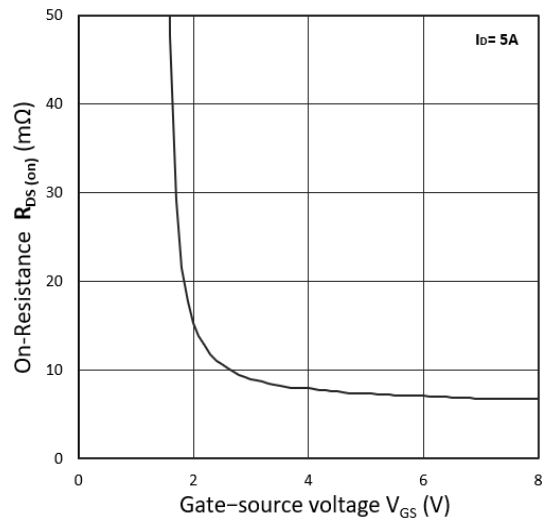


Figure 5. I_S vs. V_{SD}

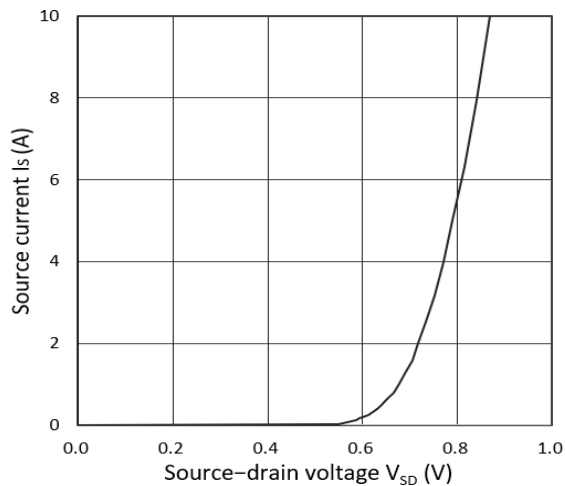
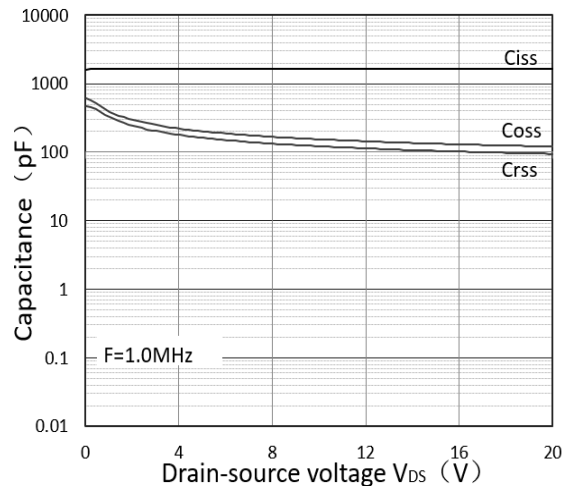
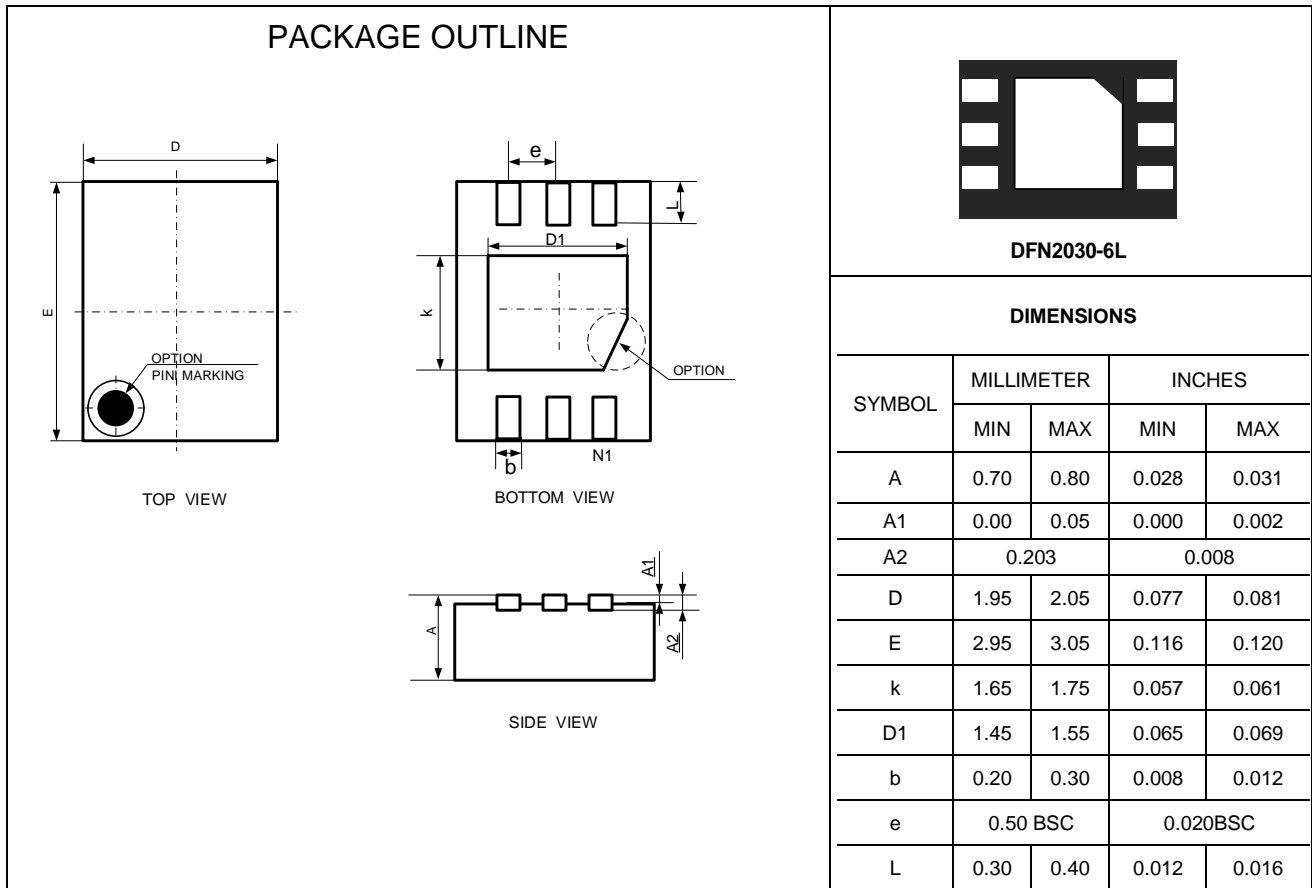


Figure 6. Capacitance Characteristics



Outline Drawing –DFN2030-6L



Marking Codes

Part Number	WM02DN095C
Marking Code	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> <p style="text-align: center;">●</p> <p style="text-align: center;">C095N02</p> <p style="text-align: center;">WWXX XXX</p> </div> <div> <p>C095N02 = Device Code</p> <p>WWXX XXX= Date Code</p> </div> </div>

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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Users should verify actual device performance in their specific applications.

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