WM02DN085C

Dual N-Channel Enhancement Mode MOSFET

Description

WM02DN085C 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 (mΩ)
20	8.5	8.2 @VGS=4.5V
		8.5 @VGS=4.0V
		8.8 @VGS=3.7V
		9.5 @VGS=3.1V
		11.0 @VGS=2.5V

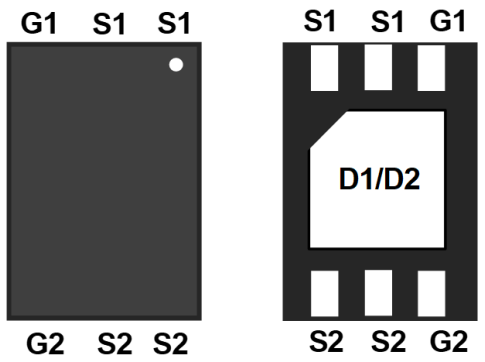
Features

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

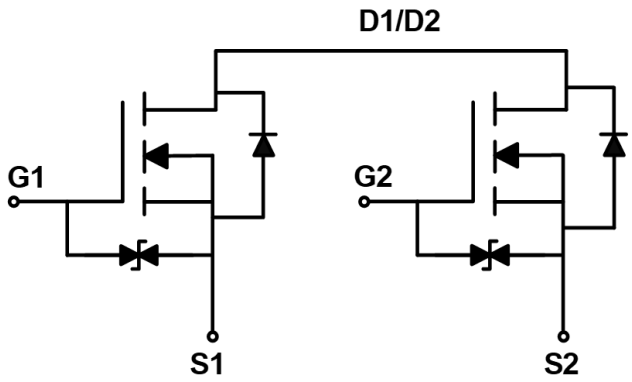
Applications

- Battery protection
- Load switch

Schematic & PIN Configuration



DFN2030-6L



Device symbol

Absolute Maximum Rating

Parameter		Symbol	Value	Unit
Drain-Source voltage		V_{DS}	20	V
Gate-Source voltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25℃	I_D	8.5	A
	T_A=70℃		6.9	
Pulsed Drain Current[1]		I_{DM}	56	A
Single Pulse Avalanche Energy[5]		EAS	28.8	mJ
Avalanche Current		I_{AS}	24	A
Total Power Dissipation	T_A=25℃	P_D	1.56	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C
Maximum Junction-to-Ambient[2]		$R_{\theta JA}$	80	°C/W

Electrical Characteristics (T_{amb}=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
Gate-body Leakage current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±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 = 250μA	0.45	-	1.5	V
Drain-Source on-Resistance[3]	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 3A	4.9	8.2	10.9	mΩ
		V_{GS} = 4.0V, I_D = 3A	5.0	8.5	11.6	
		V_{GS} = 3.7V, I_D = 3A	5.2	8.8	12	
		V_{GS} = 3.1V, I_D = 3A	5.4	9.5	13	
		V_{GS} = 2.5V, I_D = 3A	6.5	11	15.5	
Forward Transconductance[3]	g_{fs}	V_{DS} = 5V, I_D = 3A	-	38	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz	-	1612	-	pF
Output Capacitance	C_{oss}		-	162	-	
Reverse Transfer Capacitance	C_{rss}		-	140	-	
Switching Characteristics						
Total Gate Charge[4]	Q_g	V_{GS} = 4.5V,V_{DS} = 15V, I_D= 5.5A	-	22.1	-	nC
Gate-Source Charge[4]	Q_{gs}		-	3.2	-	
Gate-Drain Charge[4]	Q_{gd}		-	8.3	-	
Turn-on Delay Time[4]	$t_{d(on)}$	V_{GS} = 4.5V, V_{DD} = 15V, R_G = 6Ω, I_D= 5.5A	-	10.2	-	nS
Rise Time[4]	t_r		-	39.7	-	
Turn-off Delay Time[4]	$t_{d(off)}$		-	65.2	-	
Fall Time[4]	t_f		-	30.1	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	I_S = 8.5A, 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≤300μs, duty cycle≤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}=24A.

Typical Characteristics

Figure 1. Output Characteristics

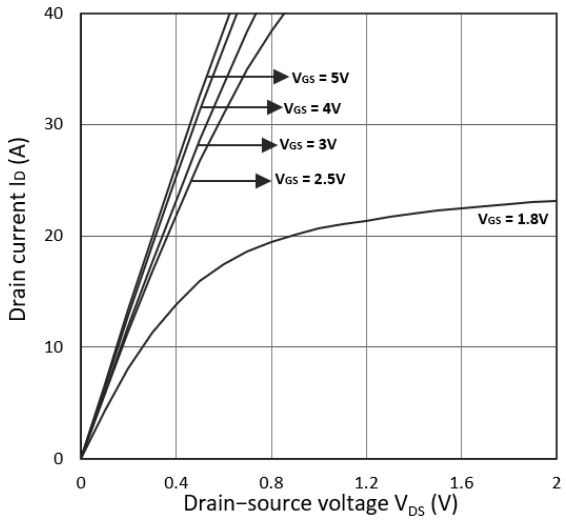


Figure 2. Transfer Characteristics

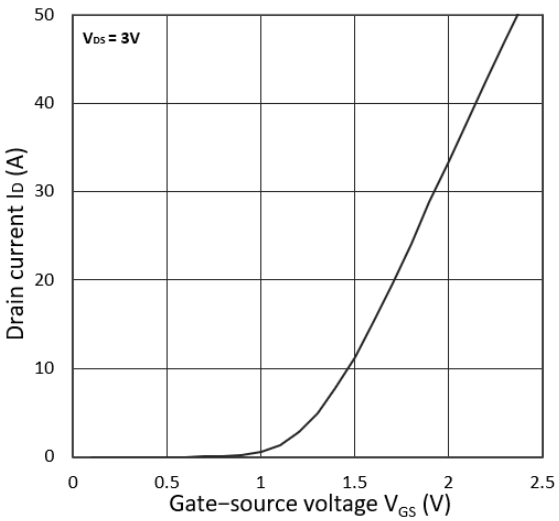


Figure 3. $R_{DS(ON)}$ vs. I_D

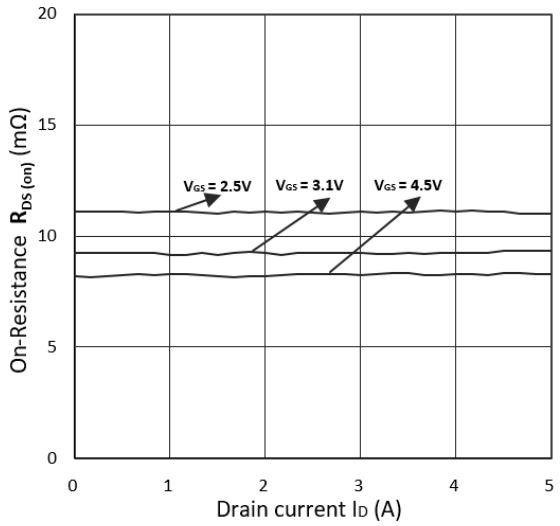


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

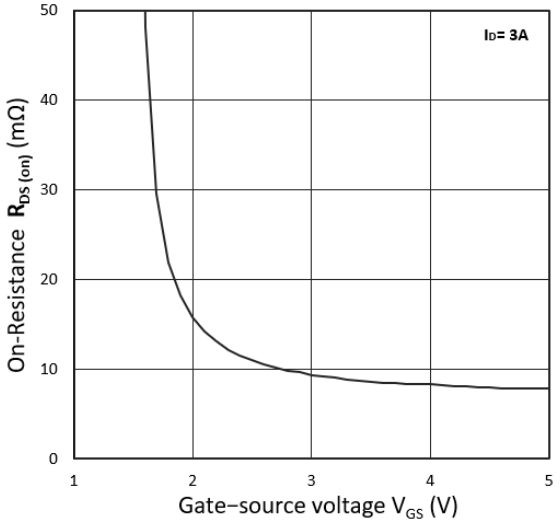


Figure 5. I_S vs. V_{SD}

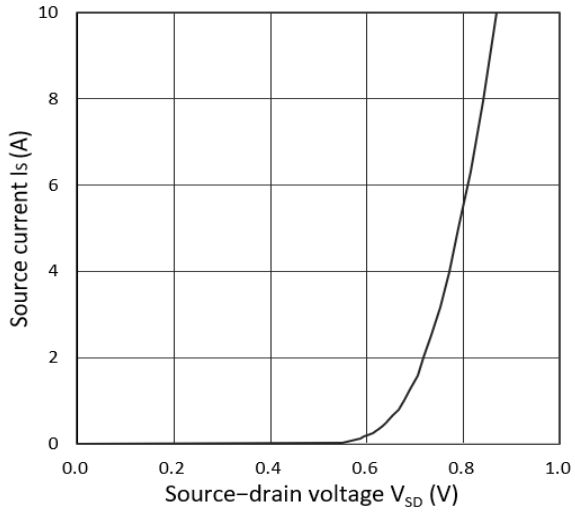
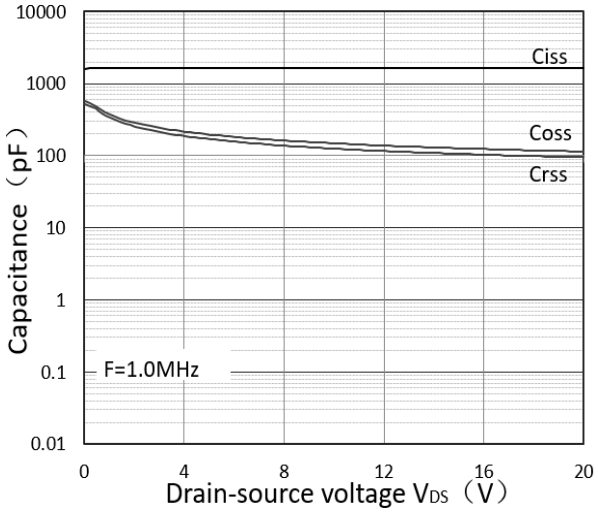
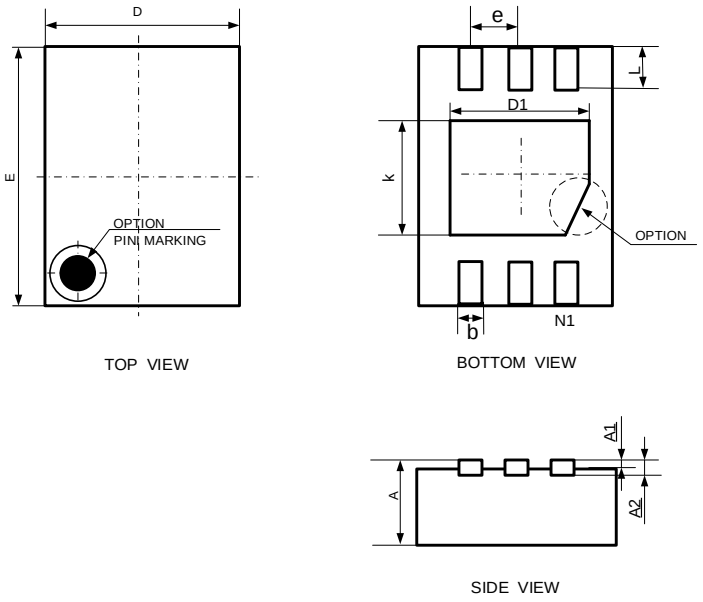


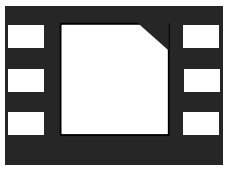
Figure 6. Capacitance Characteristics



Outline Drawing –DFN2030-6L

PACKAGE OUTLINE





DFN2030-6L

DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.80	0.028	0.031
A1	0.00	0.05	0.000	0.002
A2	0.203		0.008	
D	1.95	2.05	0.077	0.081
E	2.95	3.05	0.116	0.120
k	1.65	1.75	0.057	0.061
D1	1.45	1.55	0.065	0.069
b	0.20	0.30	0.008	0.012
e	0.50 BSC		0.020BSC	
L	0.30	0.40	0.012	0.016

Marking Codes

Part Number	WM02DN085C
Marking Code	C085N02 WWXX XXX C085N02 = Device Code WWXX XXX= Date Code

Package Information

Qty： 3k/Reel

CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-68969993 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.