WM4C62160B

20V Common-Drain Dual N-Channel MOSFET

Description

WM4C62160B 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_{SSS}(V)	I_S(A)	$R_{SS(on)}$TYP (mΩ)
20	8	14.2 @VGS=4.5V
		14.8 @VGS=4.0V
		15.2 @VGS=3.8V
		16.7 @VGS=3.1V
		19.2 @VGS=2.5V

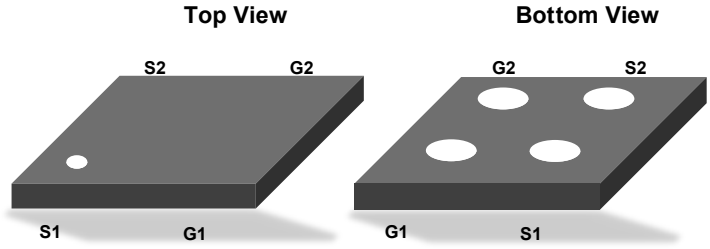
Features

- Super High Dense Cell for Low $R_{SS(ON)}$
- RoHS Compliant and Halogen-Free
- ESD Protected

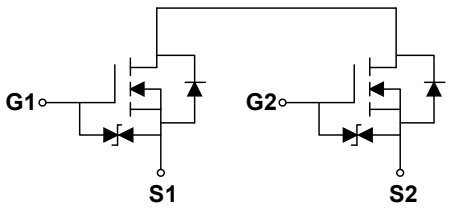
Applications

- Battery Protection
- Load Switch

Schematic & PIN Configuration



CSP1.5*1.5-4L



Device Symbol

Absolute Maximum Rating (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Source -Source Voltage	V_{SSS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Source Current[1]	I_S	8	A
Pulsed Source Current[1,2]	I_{SP}	62	A
Total Power Dissipation[1]	P_D	1.6	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Maximum Junction-to-Ambient[1]	$R_{\theta JA}$	78	°C/W

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Source-Source Breakdown Voltage	V_{SSS}	V_{GS} = 0V, I_S = 250μA	20	-	-	V
Zero Gate Voltage Source Current	I_{SSS}	V_{SS} = 20V, V_{GS} = 0V	-	-	1	μA
Gate-body Leakage Current	I_{GSS}	V_{SS} = 0V, V_{GS} = ±8V	-	-	±10	μA
Gate-Threshold Voltage	$V_{GS(off)}$	V_{SS} = 10V, I_S = 250μA	0.4	0.9	1.3	V
Source-Source on-Resistance	$R_{SS(on)}$	V_{GS} = 4.5V, I_S = 3A	8.4	14.2	19.8	mΩ
		V_{GS} = 4.0V, I_S = 3A	8.6	14.8	20.0	
		V_{GS} = 3.8V, I_S = 3A	8.8	15.2	21.0	
		V_{GS} = 3.1V, I_S = 3A	10.0	16.7	23.0	
		V_{GS} = 2.5V, I_S = 3A	11.0	19.2	30.0	
Forward Transconductance	$\|yg_{fs}\|$	V_{SS} = 5V, I_S = 3A	-	20	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{SS} = 10V, V_{GS} =0V, f =1MHz	-	230	-	pF
Output Capacitance	C_{oss}		-	209	-	
Reverse Transfer Capacitance	C_{rss}		-	62	-	
Switching Characteristics						
Total Gate Charge	Q_g	V_{GS} = 4.5V, V_{SS} = 10V, I_S= 3A	-	12.8	-	nC
Turn-on Delay Time	$t_{d(on)}$	V_{GS} =4.5V, V_{SS}= 10V, R_G = 3Ω , I_S = 3A	-	1	-	μs
Rise Time	t_r		-	1.9	-	
Turn-off Delay Time	$t_{d(off)}$		-	6.1	-	
Fall Time	t_f		-	7.1	-	
Drain-Source Diode Characteristics						
Forward Source to Source Voltage	$V_{F(S-S)}$	I_S = 1A, V_{GS} = 0V	-	-	1.2	V

Notes:

1. Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36μm Copper).

2. t = 10μs, duty cycle ≤ 1%.

Typical Characteristics

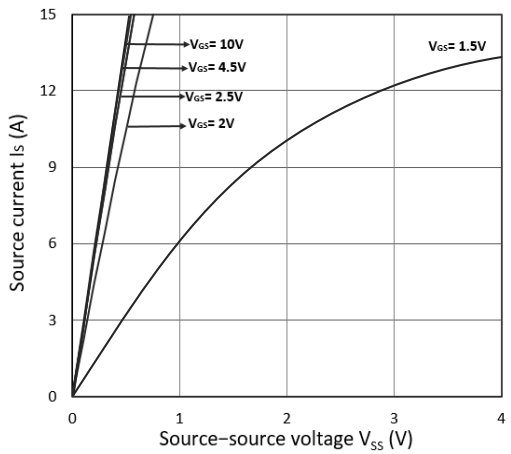


Figure 1. Output Characteristics

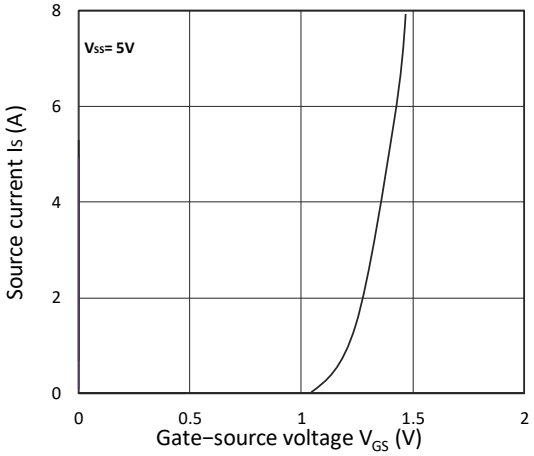


Figure 2. Transfer Characteristics

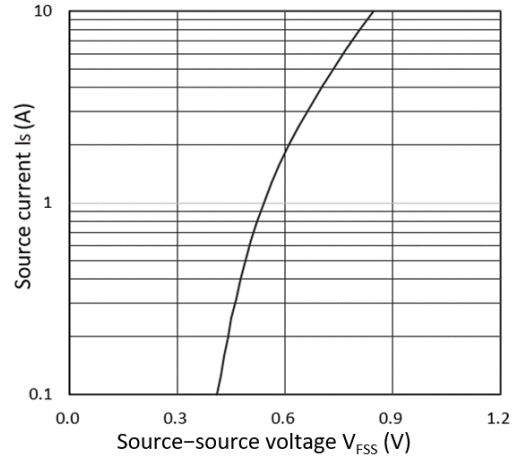


Figure 3. Forward Characteristics of Reverse

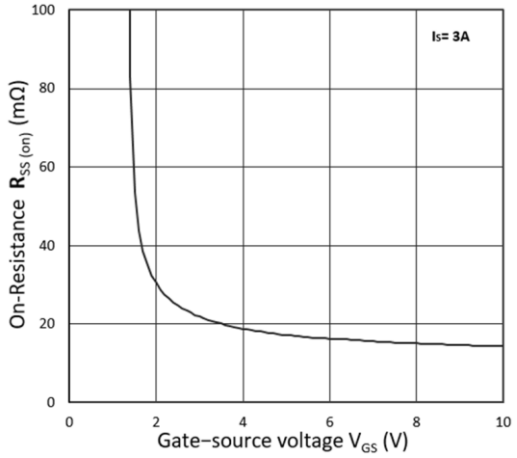


Figure 4. $R_{SS(on)}$ vs. V_{GS}

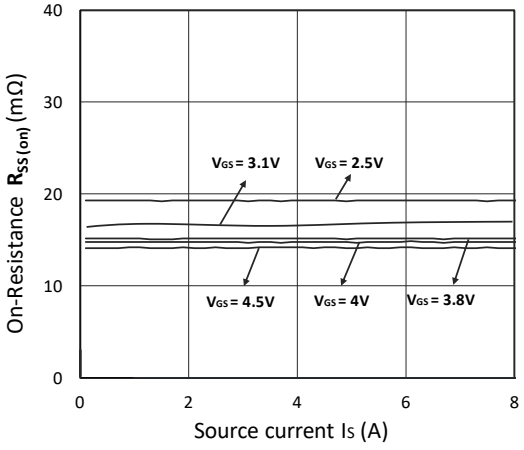


Figure 5. $R_{SS(on)}$ vs. I_S

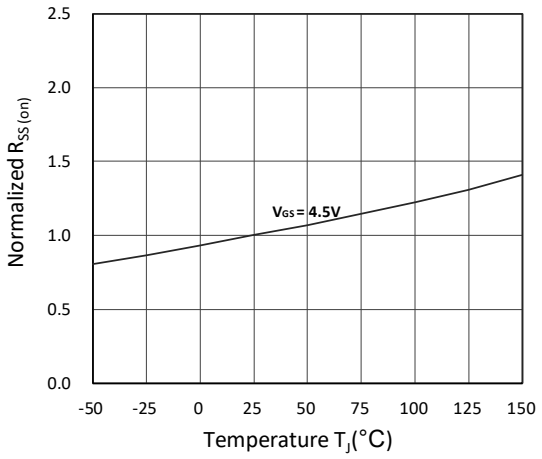


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

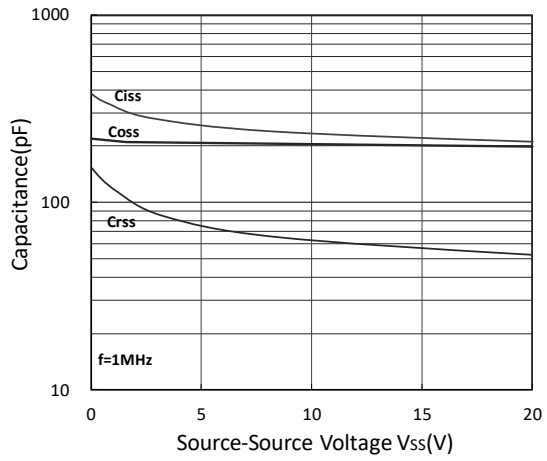


Figure 7. Capacitance Characteristics

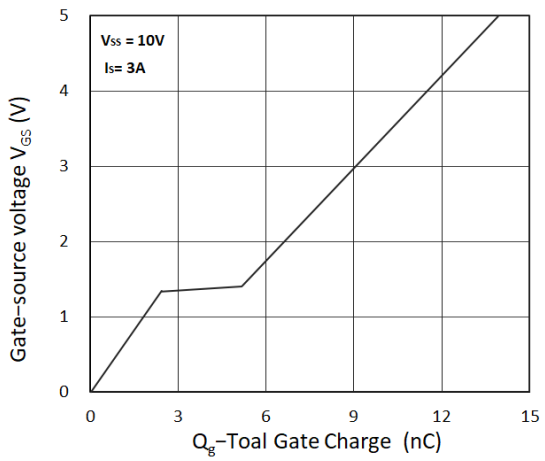
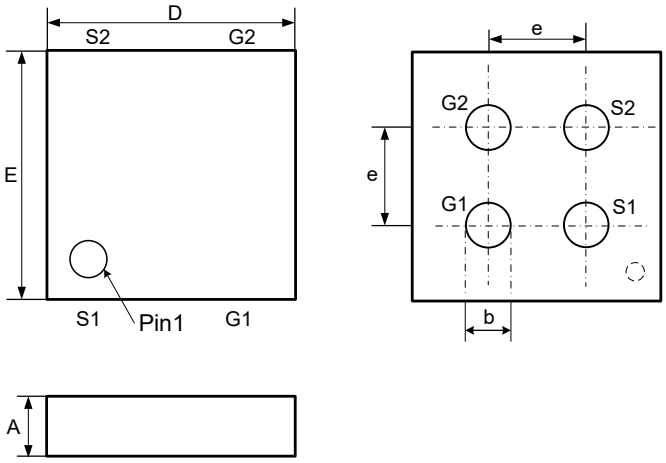


Figure 8. Gate Charge Characteristics

Outline Drawing CSP1.5*1.5-4L

PACKAGE OUTLINE





CSP1.5*1.5-4L

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	1.45	1.50	1.55
E	1.45	1.50	1.55
e		0.65BSC	
b	0.27	0.30	0.33
A	0.16	0.18	0.20

Marking Codes

Part Number	WM4C62160B
Marking Code	160B XXX ● 160B= Device code XXX= Date code

Package Information

Qty： 8k/Reel

CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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Product Specification Statement

1. The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

2. The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

3. WAYON strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, WAYON cannot guarantee that the information provided in the product specification is entirely accurate and error-free. WAYON shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications. WAYON reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with WAYON to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult WAYON in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

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5. The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

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