WM4C62160A

20V Common-Drain Dual N-Channel MOSFET

Description

WM4C62160A 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	14.0 @VGS=4.5V
		14.6 @VGS=4.0V
		15.0 @VGS=3.7V
		16.5 @VGS=3.1V
		19.0 @VGS=2.5V

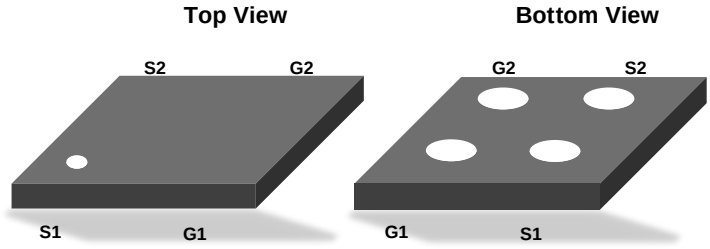
Features

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

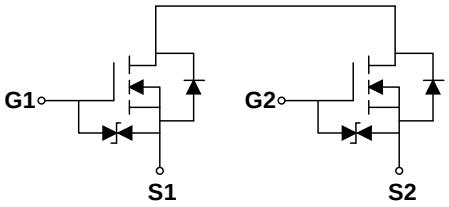
Applications

- 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}	±12	V
Continuous Source Current[1]	I_S	8	A
Pulsed Source Current[1,2]	I_{SP}	62	A
Total Power Dissipation[1]	P_D	1.7	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Maximum Junction-to-Ambient[1]	$R_{\theta JA}$	267	°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} = V_{GS}, I_S = 250μA	0.4	0.75	1.3	V
Source-Source on-Resistance	$R_{SS(on)}$	V_{GS} = 4.5V, I_S = 3A	8.5	14.0	19.5	mΩ
		V_{GS} = 4.0V, I_S = 3A	9.0	14.6	20.0	
		V_{GS} = 3.7V, I_S = 3A	9.0	15.0	21.0	
		V_{GS} = 3.1V, I_S = 3A	10.0	16.5	23.0	
		V_{GS} = 2.5V, I_S = 3A	11.0	19.0	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	-	193	-	pF
Output Capacitance	C_{oss}		-	158	-	
Reverse Transfer Capacitance	C_{rss}		-	45	-	
Switching Characteristics						
Total Gate Charge	$Q_{g(TOT)}$	V_{GS} = 4.5V, V_{SS} = 10V, I_S= 3A	-	13	-	nC
Threshold Gate Charge	$Q_{g(TH)}$			1.7		
Gate-to-Source Charge	Q_{gs}		-	2.2	-	
Gate-to-Drain Charge	Q_{gd}		-	3	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS} =4.5V, V_{SS}= 10V, R_G = 3Ω , I_S = 3A	-	0.9	-	μs
Rise Time	t_r		-	1.9	-	
Turn-off Delay Time	$t_{d(off)}$		-	6.3	-	
Fall Time	t_f		-	7.3	-	
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

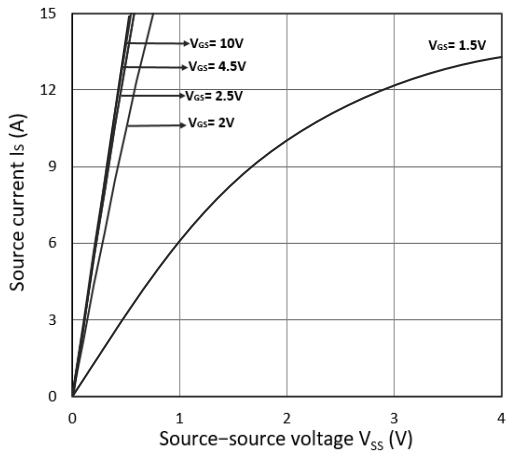


Figure 1. Output Characteristics

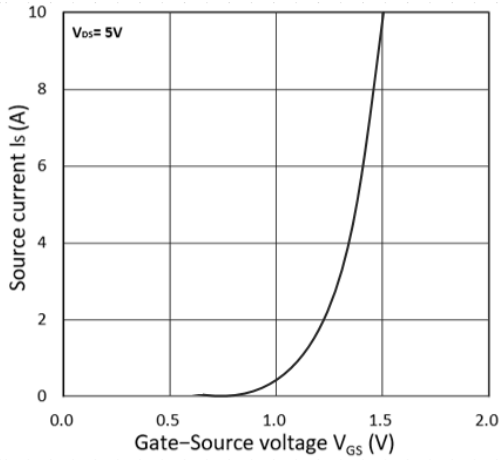


Figure 2. Transfer Characteristics

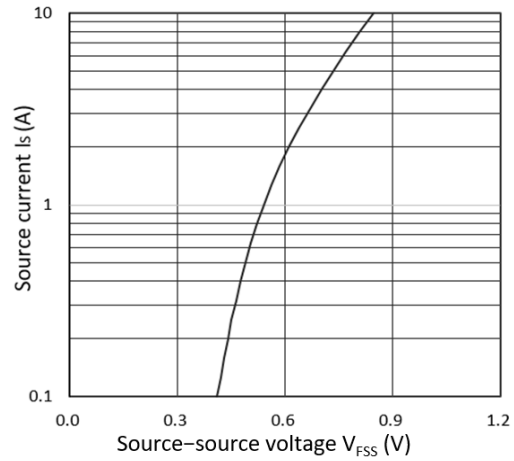


Figure 3. Forward Characteristics of Reverse

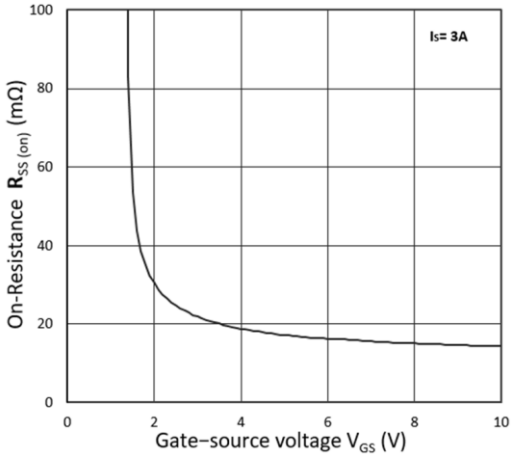


Figure 4. $R_{SS(ON)}$ vs. V_{GS}

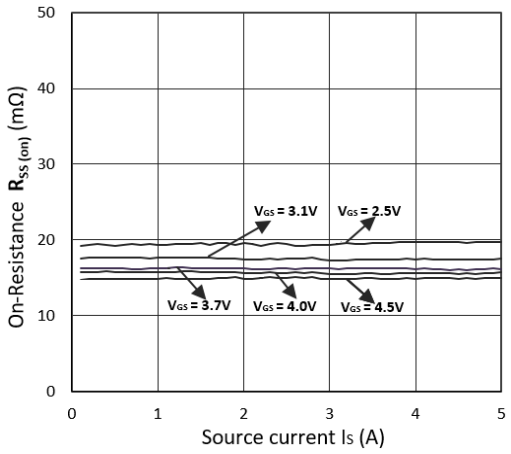


Figure 5. $R_{SS(ON)}$ vs. I_S

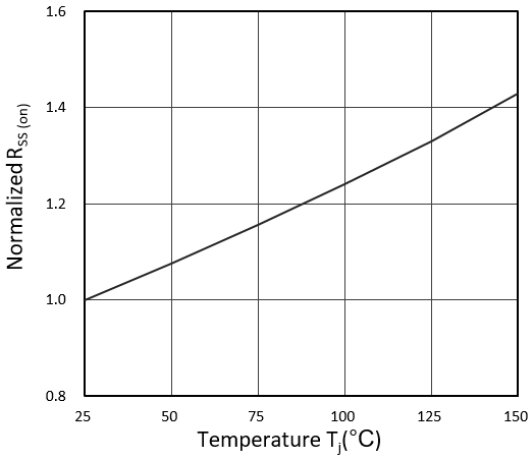


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

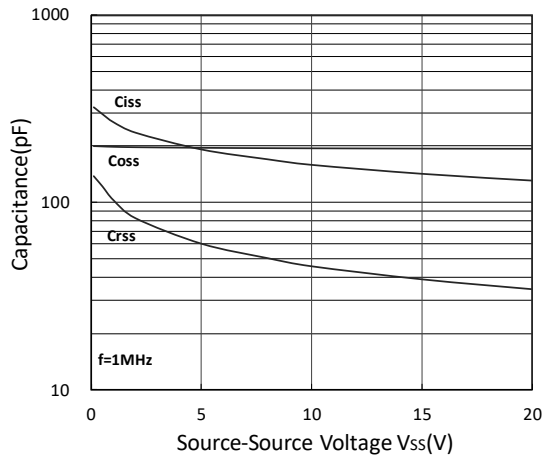


Figure 7. Capacitance Characteristics

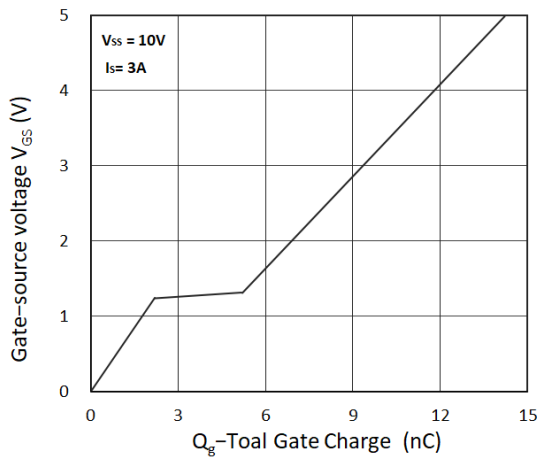
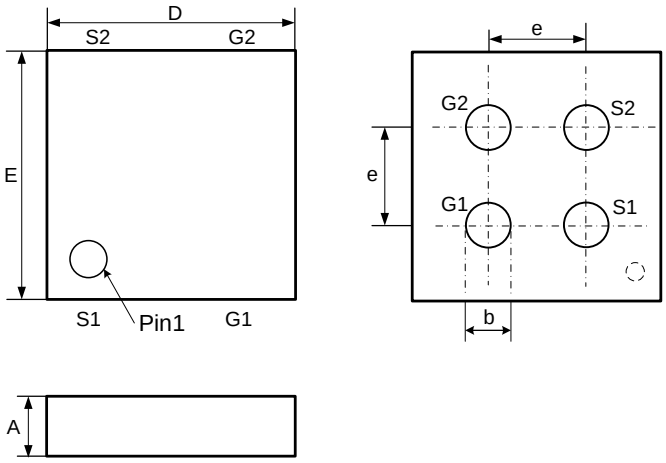


Figure 8. Gate Charge Characteristics

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	0.24	0.27	0.30
A	0.16	0.18	0.20

Marking Codes

Part Number	WM4C62160A
Marking Code	160 WXX ● 160= Device code WXX= Date code

Package Information

Qty： 3k/Reel

CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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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.

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