

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 @V _{GS} =4.5V
		14.6 @V _{GS} =4.0V
		15.0 @V _{GS} =3.7V
		16.5 @V _{GS} =3.1V
		19.0 @V _{GS} =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

CSP1515-4L

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 _{θJA}	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	y _{gfs}	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:

- Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36μm Copper).
- t = 10μs, duty cycle ≤ 1%.

Typical Characteristics

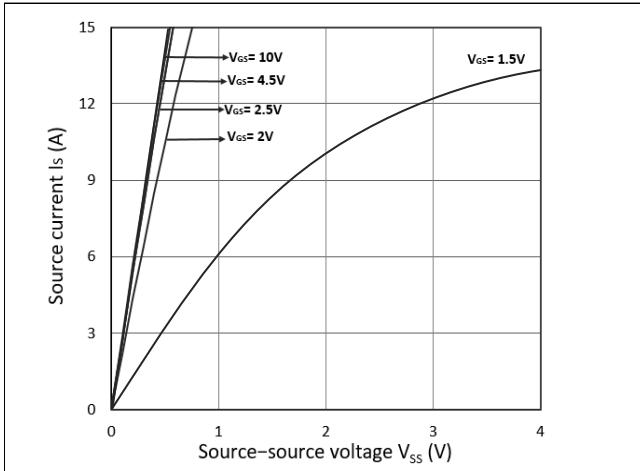


Figure 1. Output Characteristics

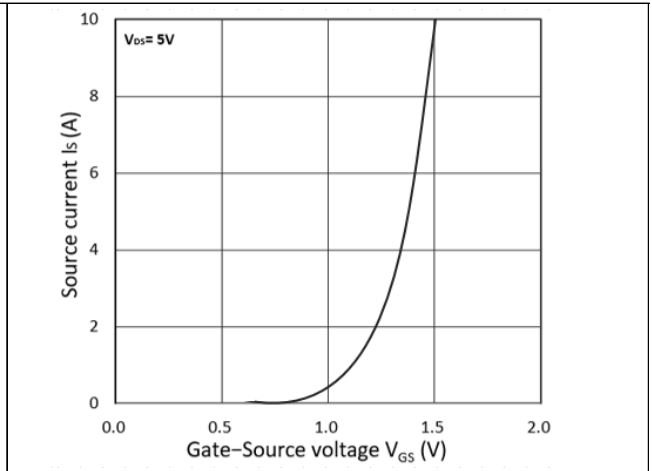


Figure 2. Transfer Characteristics

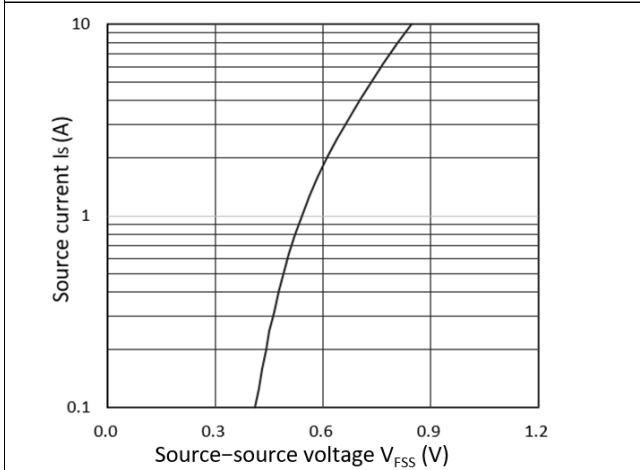


Figure 3. Forward Characteristics of Reverse

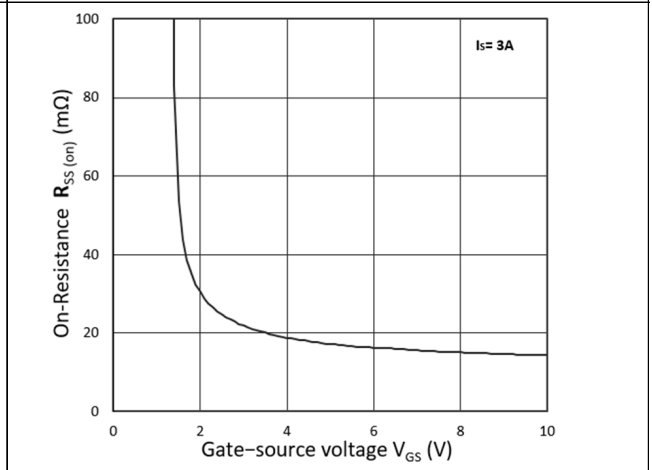


Figure 4. $R_{SS(on)}$ vs. V_{GS}

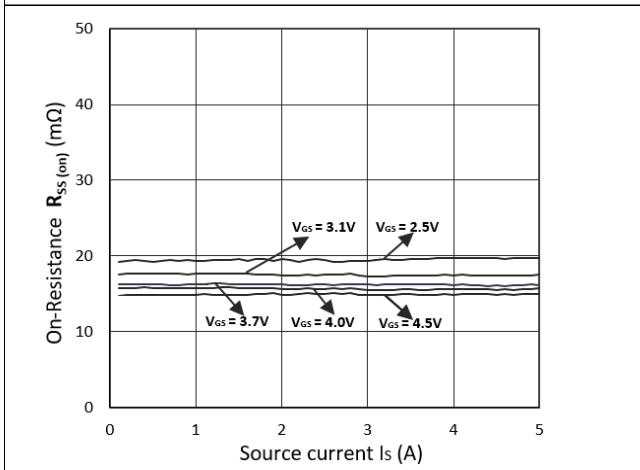


Figure 5. $R_{SS(on)}$ vs. I_S

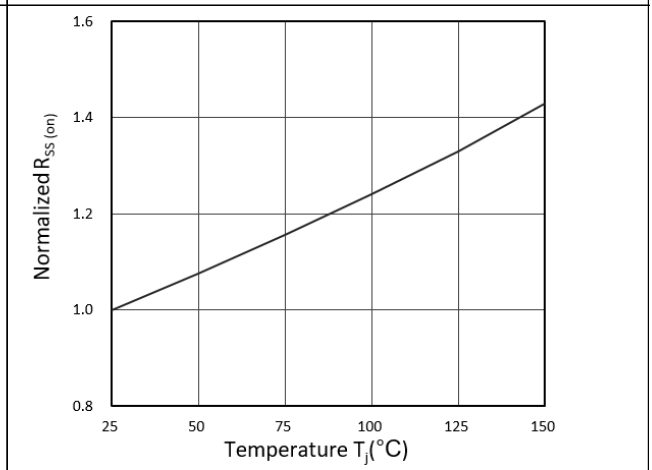


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

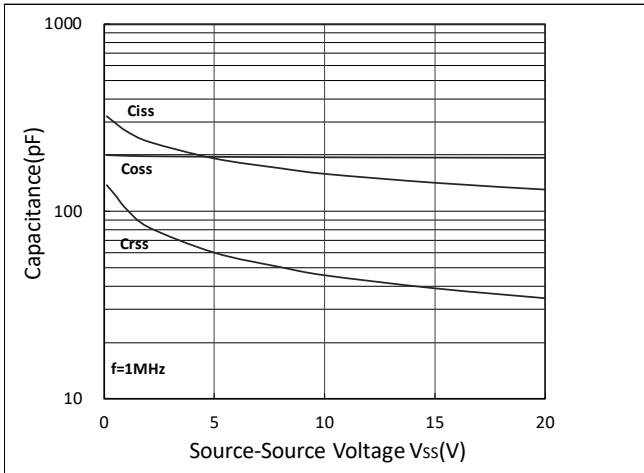


Figure 7. Capacitance Characteristics

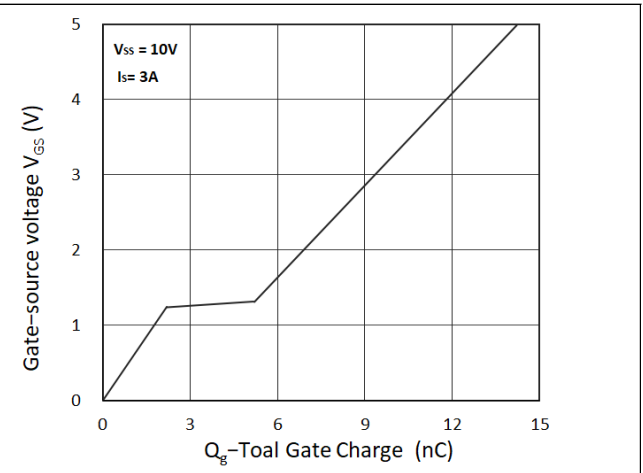


Figure 8. Gate Charge Characteristics

Outline Drawing CSP1515-4L

PACKAGE OUTLINE

CSP1515-4L

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	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 160 WXX ● </div>	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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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.