

12V Common-Drain Dual N-Channel MOSFET

Description

WM6C61042A 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)
12	8	4.2 @VGS=4.5V
		4.5 @VGS=3.8V
		5.2 @VGS=3.1V
		6.2 @VGS=2.5V

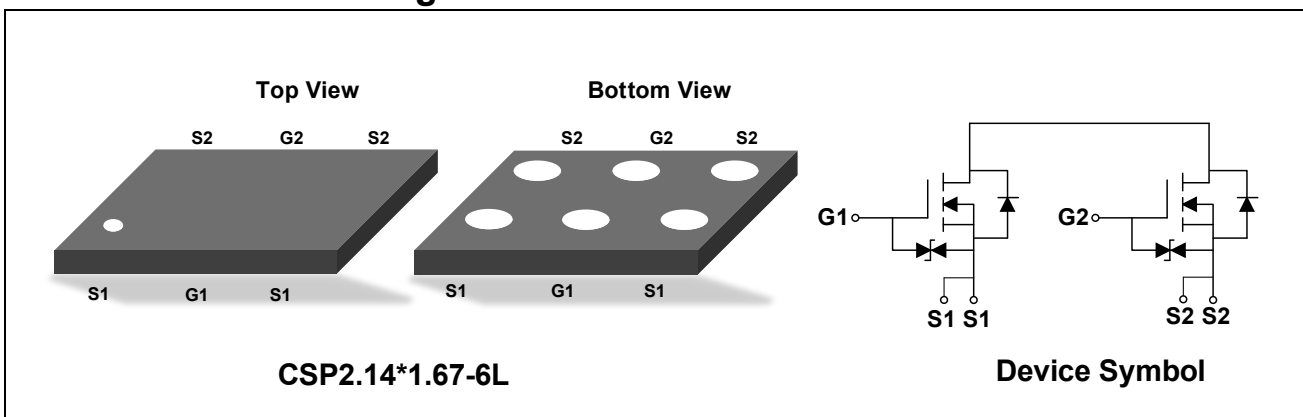
Features

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

Applications

- Battery Protection
- Load Switch

Schematic & PIN Configuration



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

Parameter	Symbol	Value	Unit
Source -Source Voltage	V _{SSS}	12	V
Gate-Source Voltage	V _{GSS}	±10	V
Continuous Source Current	DC ¹	I _{S1}	8
	DC ²	I _{S2}	17
Pulsed Source Current ³	I _{SP}	80	A
Total Power Dissipation	DC ¹	P _{D1}	0.45
	DC ²	P _{D2}	2.1
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C
Maximum Junction-to-Ambient	DC ¹	R _{θJA1}	278
	DC ²	R _{θJA2}	59

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	12	-	-	V
Zero Gate Voltage Source Current	I_{SSS}	V _{SS} = 12V, V _{GS} = 0V	-	-	1	μA
Gate-body Leakage Current	I_{GSS}	V _{SS} = 0V, V _{GS} = ±8V	-	-	±10	μA
		V _{SS} = 0V, V _{GS} = ±5V	-	-	±1	
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 = 4A	3.0	4.2	5.3	mΩ
		V _{GS} = 3.8V, I _S = 4A	3.2	4.5	6.5	
		V _{GS} = 3.1V, I _S = 4A	3.5	5.2	7.7	
		V _{GS} = 2.5V, I _S = 4A	3.8	6.2	10.0	
Forward Transconductance	 y_{gfs} 	V _{SS} = 5V, I _S = 4A	-	7	-	S
Dynamic Characteristics¹						
Input Capacitance	C_{iss}	V _{SS} = 10V, V _{GS} = 0V, f = 1MHz	-	2712	-	pF
Output Capacitance	C_{oss}		-	401	-	
Reverse Transfer Capacitance	C_{rss}		-	339	-	
Switching Characteristics						
Total Gate Charge ¹	Q_g	V _{GS} = 4.5V, V _{SS} = 10V, I _S = 4A	-	34	-	nC
Turn-on Delay Time ^{1,2}	t_{d(on)}	V _{GS} = 4.5V, V _{SS} = 10V, I _S = 4A	-	4.2	-	μs
Rise Time ^{1,2}	t_r		-	6.0	-	
Turn-off Delay Time ^{1,2}	t_{d(off)}		-	13.3	-	
Fall Time ^{1,2}	t_f		-	8.7	-	
Drain-Source Diode Characteristics						
Forward Source to Source Voltage	V_{F(S-S)}	I _S = 4A, 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. Mounted on Ceramic substrate (70mm x 70mm x t1.0mm)
3. t = 10μs, duty cycle ≤ 1%.

Typical Characteristics

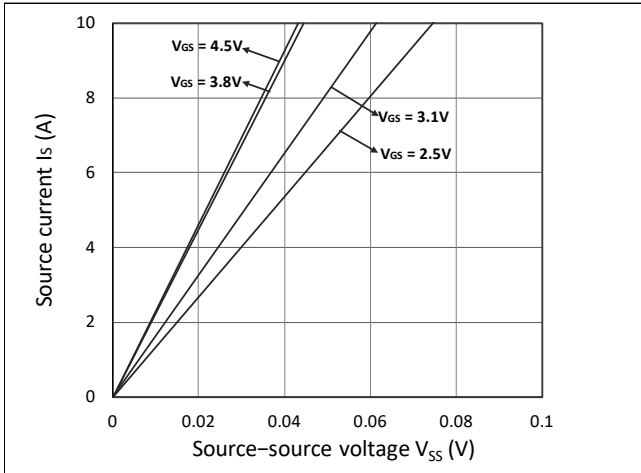


Figure 1. Output Characteristics

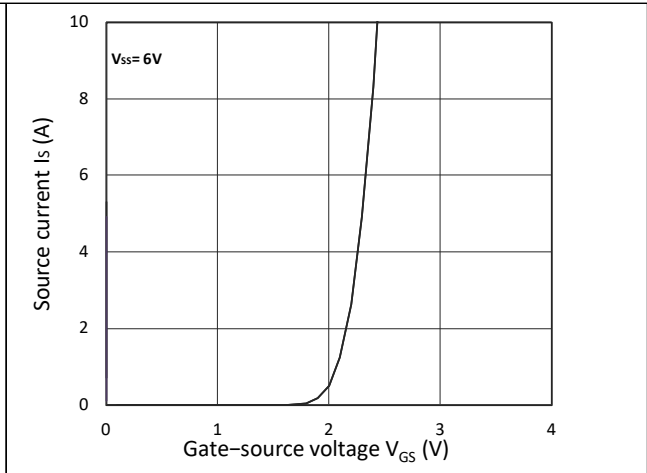


Figure 2. Transfer Characteristics

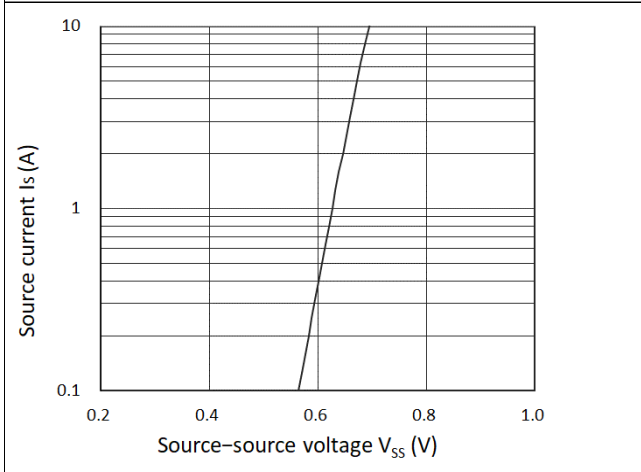


Figure 3. Forward Characteristics of Reverse

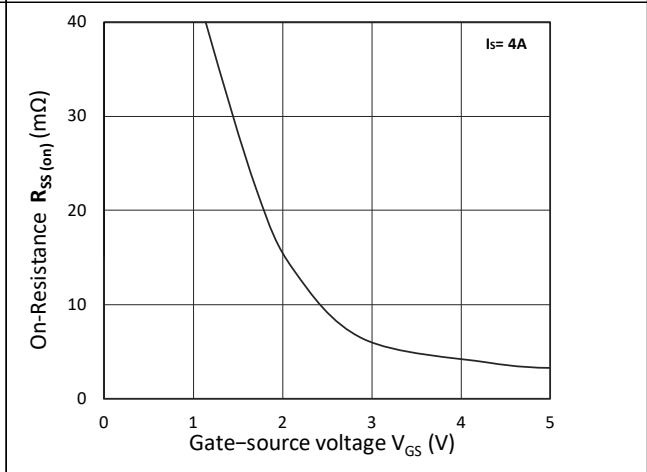


Figure 4. $R_{SS(on)}$ vs. V_{GS}

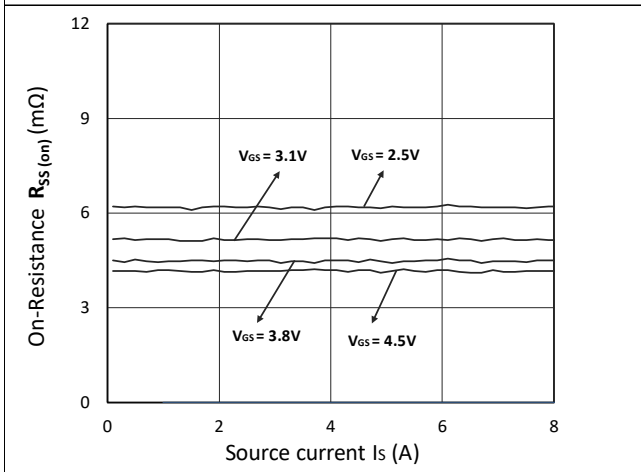


Figure 5. $R_{SS(on)}$ vs. I_S

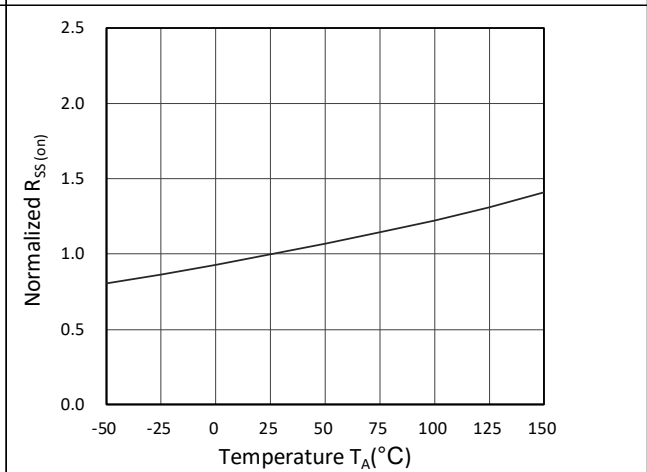


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

Outline Drawing CSP2.14*1.67-6L

PACKAGE OUTLINE

CSP2.14*1.67-6L

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	2.10	2.14	2.17
D1	0.39	0.42	0.45
E	1.63	1.67	1.71
E1	0.48	0.51	0.54
e	0.65 BSC		
b	0.27	0.30	0.33
A	0.09	0.11	0.15

Marking Codes

Part Number	WM6C61042A		
Marking Code	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 61042 WXXXX ● </div>	61042= Device code WXXXX= Date code	

Package Information

Qty: 8k/Reel

CONTACT INFORMATION

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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.

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