WMAC61020A

12V Common-Drain Dual N-Channel MOSFET

Description

WMAC61020A 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	14	2.0 @VGS=4.5V
		2.1 @VGS=3.8V
		2.4 @VGS=3.1V
		3.1 @VGS=2.5V

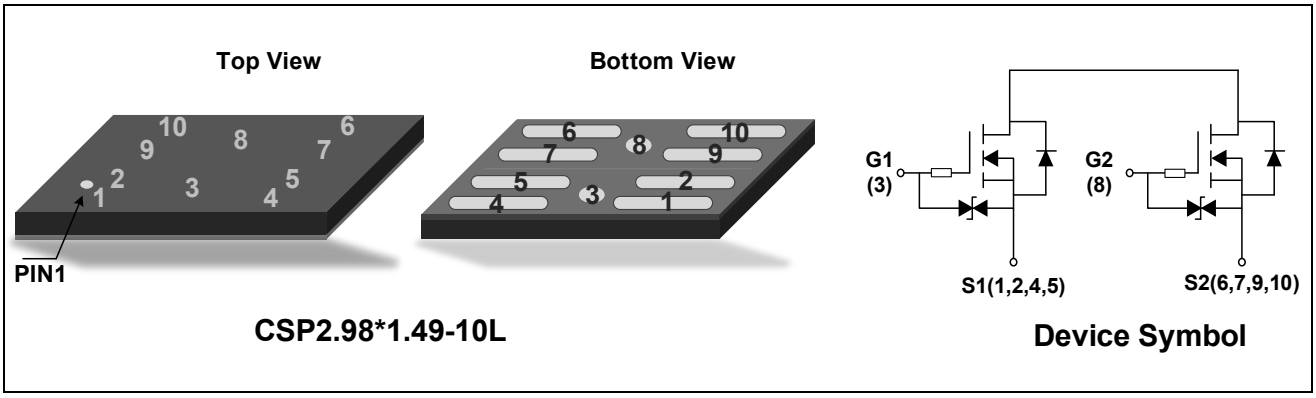
Features

- 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



CSP2.98*1.49-10L

Device Symbol

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}	±8	V
Continuous Source Current	DC[1]	I_{S1}	14	A
	DC[2]	I_{S2}	30	A
Pulsed Source Current[3]		I_{SP}	138	A
Total Power Dissipation	DC[1]	P_{D1}	0.57	W
	DC[2]	P_{D2}	3.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Maximum Junction-to-Ambient	DC[1]	$R_{\theta JA1}$	210	°C/W
	DC[2]	$R_{\theta JA2}$	36	°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	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	-	-	±100	μA
Gate-Threshold Voltage	$V_{GS(off)}$	V_{SS} = 8V, I_S = 250μA	0.4	0.9	1.4	V
Source-Source on-Resistance	$R_{SS(on)}$	V_{GS} = 4.5V, I_S = 6A	1.5	2.0	2.7	mΩ
		V_{GS} = 3.8V, I_S = 6A	1.6	2.1	2.8	
		V_{GS} = 3.1V, I_S = 6A	1.7	2.4	3.9	
		V_{GS} = 2.5V, I_S = 6A	2.0	3.1	6.0	
Forward Transconductance	$\|yg_{fs}\|$	V_{SS} = 5V, I_S = 6A	-	40	-	S
Dynamic Characteristics[1]						
Input Capacitance	C_{iss}	V_{SS} = 10V, V_{GS} =0V, f =100kHz	-	4012	-	pF
Output Capacitance	C_{oss}		-	455	-	
Reverse Transfer Capacitance	C_{rss}		-	139	-	
Switching Characteristics						
Total Gate Charge[1]	Q_g	V_{GS} = 4.5V, V_{SS} = 6V, I_S= 6A	-	37	-	nC
Gate Source Charge[1]	Q_{gs}		-	7.2	-	
Gate Drain Charge[1]	Q_{gd}		-	4.8	-	
Turn-on Delay Time[1,2]	$t_{d(on)}$	V_{GS} = 4.5V, V_{SS}= 6V, I_S = 6A	-	0.95	-	μs
Rise Time[1,2]	t_r		-	1.33	-	
Turn-off Delay Time[1,2]	$t_{d(off)}$		-	2.90	-	
Fall Time[1,2]	t_f		-	3.61	-	
Source-Source Diode Characteristics						
Forward Source to Source Voltage	$V_{F(S-S)}$	I_S = 6A, 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

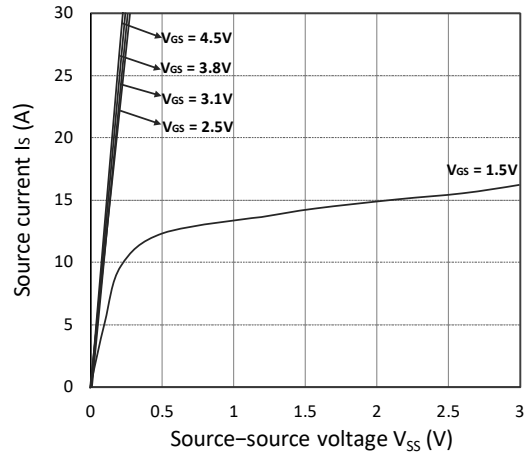


Figure 1. Output Characteristics

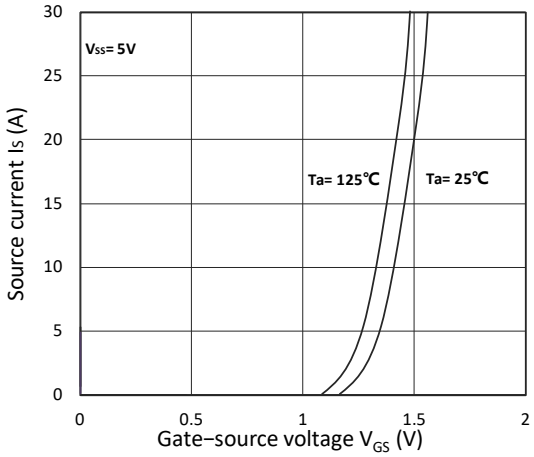


Figure 2. Transfer Characteristics

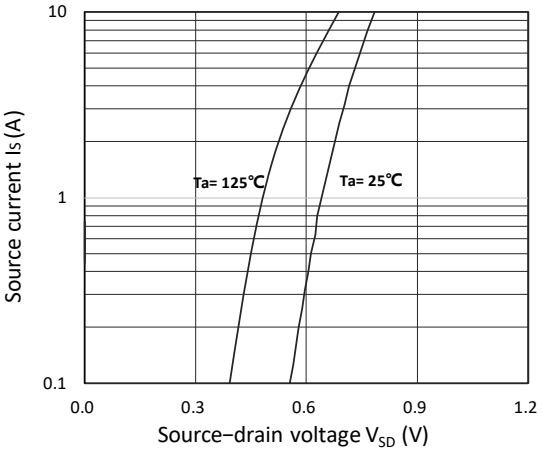


Figure 3. Forward Characteristics of Reverse

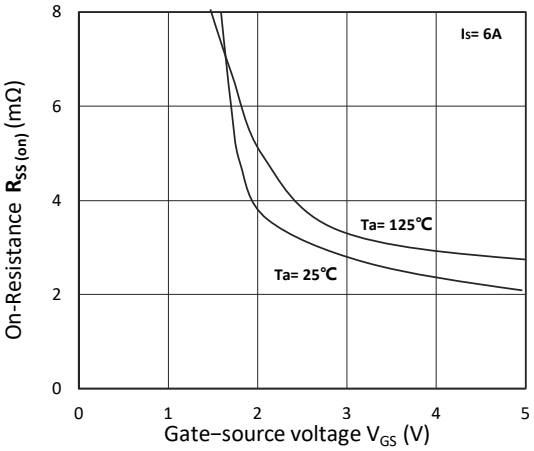


Figure 4. $R_{SS(ON)}$ vs. V_{GS}

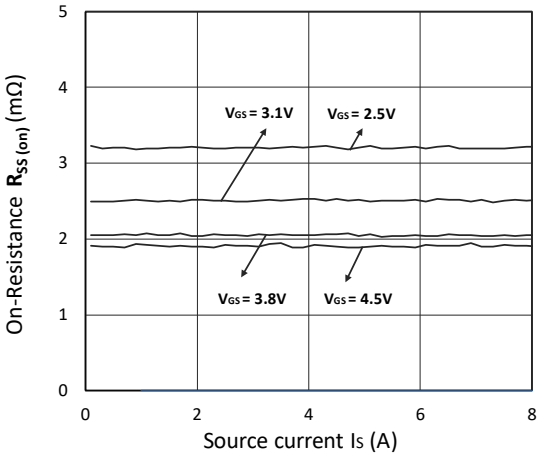


Figure 5. $R_{SS(ON)}$ vs. I_S

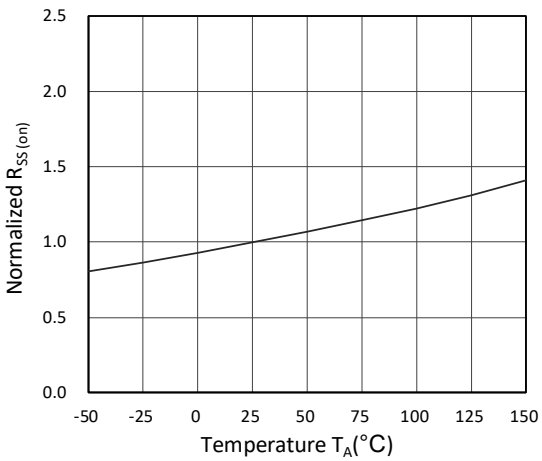


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

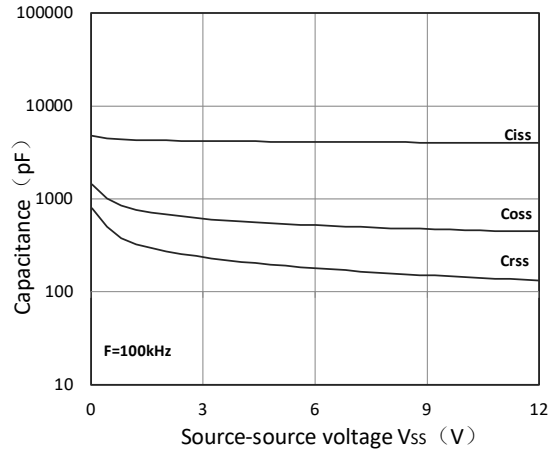


Figure 7. Capacitance Characteristics

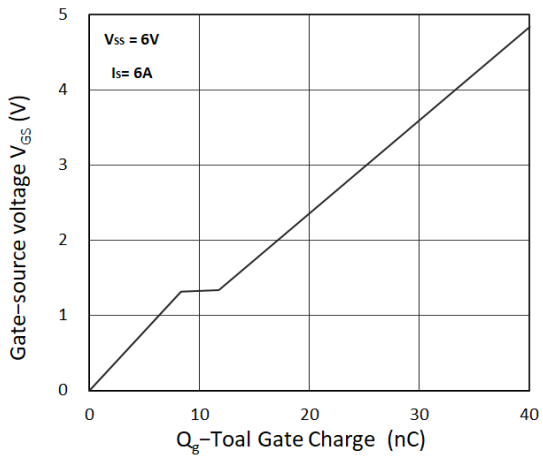
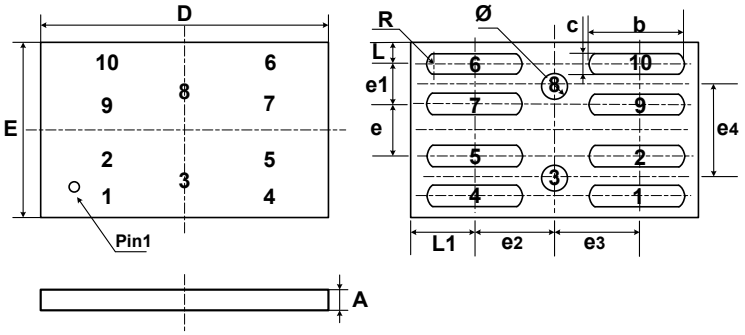
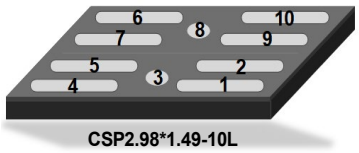


Figure 8. Gate Charge Characteristics

Outline Drawing CSP2.98*1.49-10L

PACKAGE OUTLINE





CSP2.98*1.49-10L

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.0800	0.1000	0.1200
b	1.0200	1.0400	1.0600
c	0.1550	0.1750	0.1950
D	2.9550	2.9800	3.0050
E	1.4650	1.4900	1.5150
e	0.4250 BSC		
e1	0.3250 BSC		
e2	0.8950 BSC		
e3	0.8950 BSC		
e4	0.7500 BSC		
L	0.1825	0.2075	0.2325
L1	0.5700	0.5950	0.6200
R	0.0875REF		
Ø	0.2300	0.2500	0.2700

Marking Codes

Part Number	WMAC61020A
Marking Code	61020 WXXXX • 61020= Device code WXXXX= Date code

Package Information

Qty： 8k/Reel

CONTACT INFORMATION

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