WMAC62025A

24V Common-Drain Dual N-Channel MOSFET

Description

WMAC62025A 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)
24	30	2.4 @VGS=4.5V
		2.5 @VGS=3.8V
		2.8 @VGS=3.1V
		3.4 @VGS=2.5V

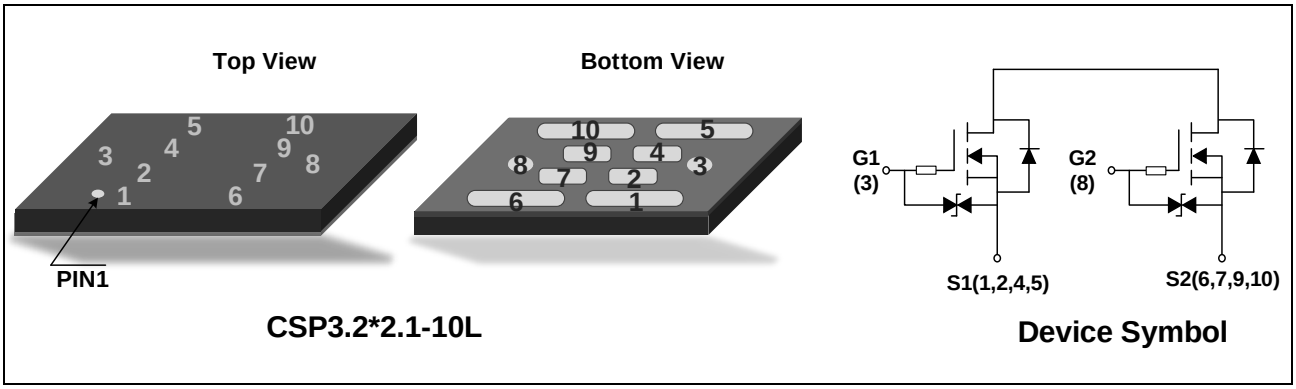
Features

- 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



CSP3.2*2.1-10L

Device Symbol

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

Parameter		Symbol	Value	Unit
Source -Source Voltage		V_{SSS}	24	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Source Current[1]	T_A = 25°C	I_S	30	A
Pulsed Source Current[2]		I_{SP}	120	A
Total Power Dissipation[1]	T_A = 25°C	P_D	3.1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Maximum Junction-to-Ambient	$R_{\theta JA1}$	40	°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	$V_{(BR)SSS}$	V_{GS} = 0V, I_S = 500μA	24	-	-	V
Zero Gate Voltage Source Current	I_{SSS}	V_{SS} = 24V, V_{GS} = 0V	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	V_{SS} = 0V, V_{GS} = ±5V	-	-	±1	μA
		V_{SS} = 0V, V_{GS} = ±12V	-	-	±10	
Gate-Threshold Voltage	$V_{GS(th)}$	V_{SS} = V_{GS}, I_S = 250μA	0.4	0.8	1.3	V
Source-Source on-Resistance	$R_{SS(on)}$	V_{GS} = 4.5V, I_S = 6A	1.8	2.4	3.1	mΩ
		V_{GS} = 3.8V, I_S = 6A	1.9	2.5	3.5	
		V_{GS} = 3.1V, I_S = 6A	2.0	2.8	4.1	
		V_{GS} = 2.5V, I_S = 6A	2.4	3.4	5	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{SS} = 12V, V_{GS} =0V, f =1MHz	-	4700	-	pF
Output Capacitance	C_{oss}		-	470	-	
Reverse Transfer Capacitance	C_{rss}		-	395	-	
Gate Resistance	R_g	f = 1MHz	-	1.1	-	KΩ
Switching Characteristics						
Total Gate Charge	Q_g	V_{GS} = 4.5V, V_{SS} = 12V, I_S= 6A	-	34.5	-	nC
Gate-Source Charge	Q_{gs}		-	7.8	-	
Gate-Drain Charge	Q_{gd}		-	14.2	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS} = 4.5V, V_{SS}= 12V, I_S = 6A，R_G = 3Ω	-	1.5	-	μs
Rise Time	t_r		-	3.9	-	
Turn-off Delay Time	$t_{d(off)}$		-	3.5	-	
Fall Time	t_f		-	10.8	-	
Source-Source Diode Characteristics						
Forward Source to Source Voltage	$V_{F(S-S)}$	I_S = 1A, V_{GS} = 0V	-	0.65	1.2	V

Notes:

1. Mounted on Ceramic substrate (70mm x 70mm x t1.0mm)

2. PW<10μs, duty cycle ≤ 1%.

Typical Characteristics

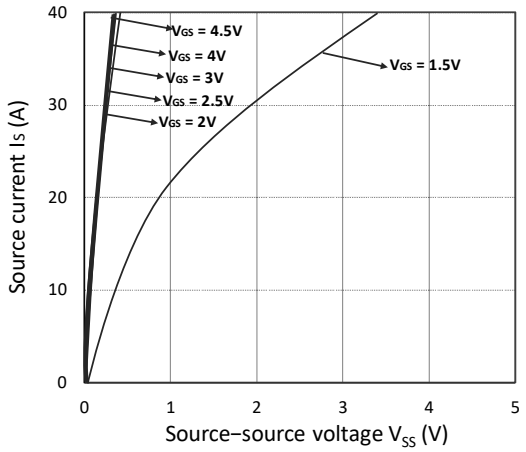


Figure 1. Output Characteristics

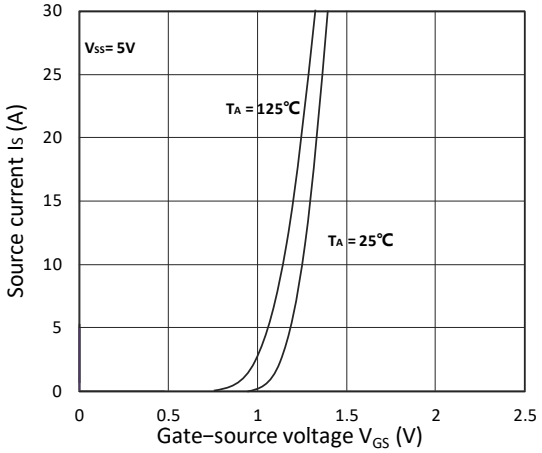


Figure 2. Transfer Characteristics

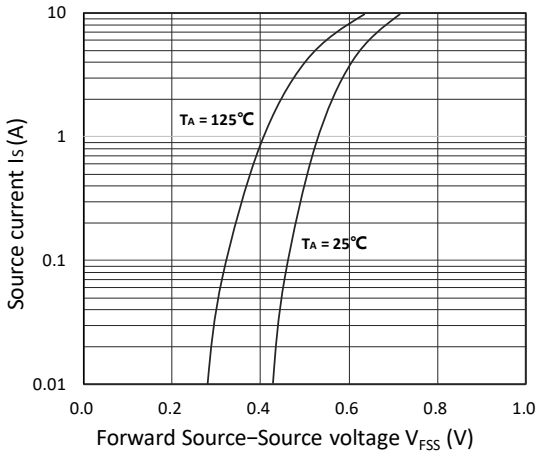


Figure 3. Forward Characteristics of Reverse

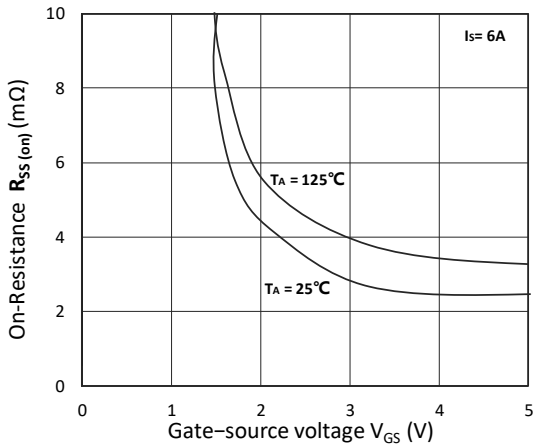


Figure 4. $R_{SS(ON)}$ vs. V_{GS}

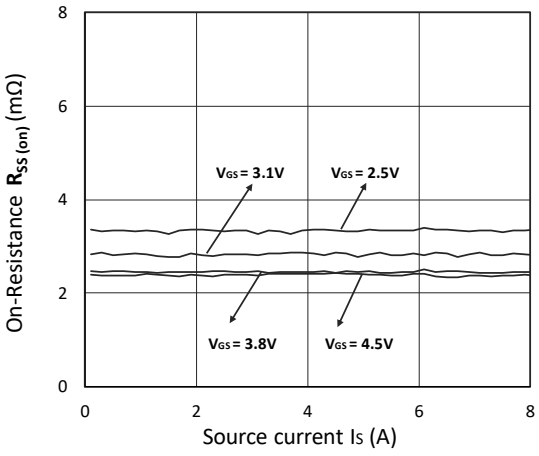


Figure 5. $R_{SS(ON)}$ vs. I_S

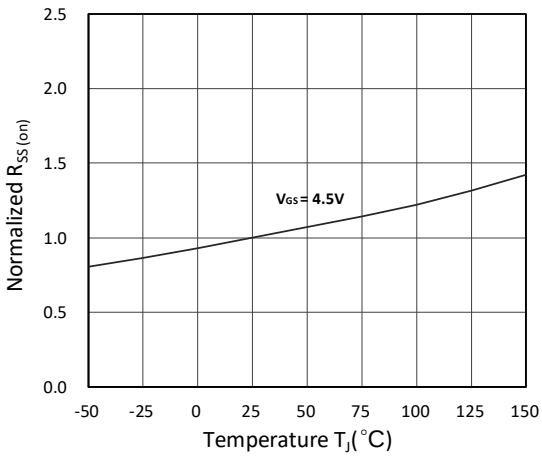


Figure 6. Normalized $R_{SS(on)}$ vs. Temperature

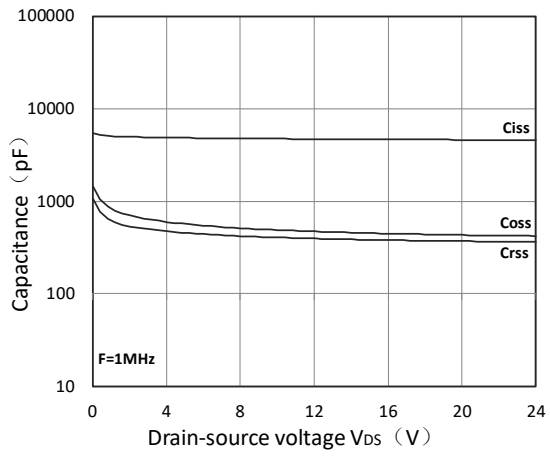


Figure 7. Capacitance Characteristics

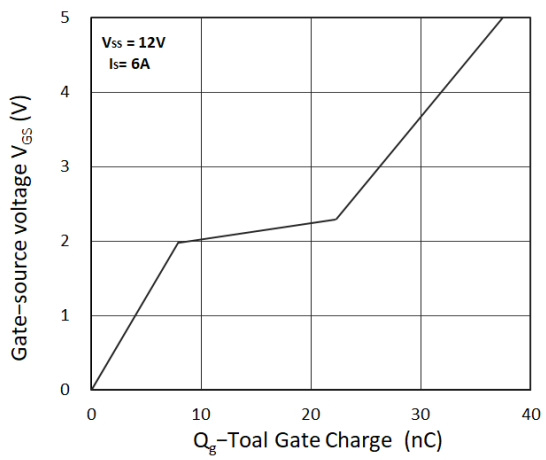
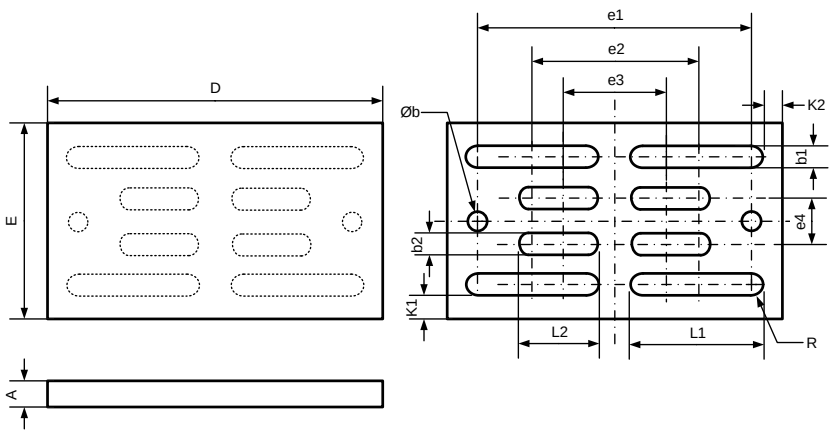
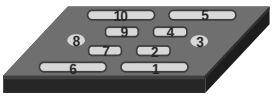


Figure 8. Gate Charge Characteristics

Outline Drawing CSP3.2*2.1-10L

PACKAGE OUTLINE





CSP3.2*2.1-10L

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.090	0.110	0.130
Ø b	0.220	0.250	0.280
b1	0.270	0.300	0.330
b2	0.270	0.300	0.330
D	3.170	3.200	3.230
E	2.070	2.100	2.130
e1	2.500 BSC		
e2	1.575 BSC		
e3	1.000 BSC		
e4	0.500 BSC		
L1	1.295	1.325	1.355
L2	0.720	0.750	0.780
k1	0.120	0.150	0.180
k2	0.120	0.150	0.180
R	0.150REF		

Marking Codes

Part Number	WMAC62025A
Marking Code	62025 XXXXX ● 62025= Device code XXXXX= Date code

Package Information

Qty： 5k/Reel

CONTACT INFORMATION

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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.

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