



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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General Description

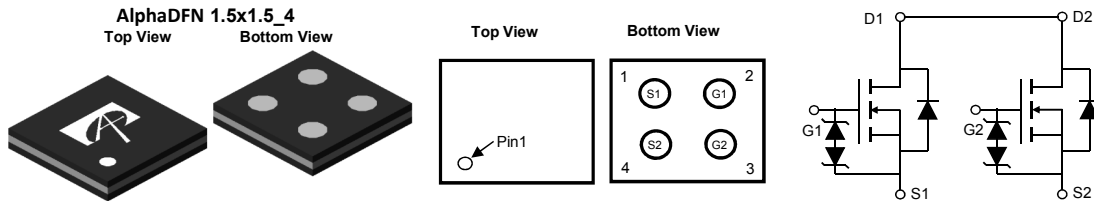
- Trench Power AlphaMOS (αMOS LV) technology
- Low $R_{SS(ON)}$
- With ESD protection to improve battery performance and safety
- Common drain configuration for design simplicity
- RoHS and Halogen-Free Compliant

Applications

- Battery protection switch
- Mobile device battery charging and discharging

Product Summary

V_{SS}	20V
I_S (at $V_{GS}=4.5V$)	4A
$R_{SS(ON)}$ (at $V_{GS}=4.5V$)	< 22mΩ
$R_{SS(ON)}$ (at $V_{GS}=4.0V$)	< 24mΩ
$R_{SS(ON)}$ (at $V_{GS}=3.7V$)	< 25mΩ
$R_{SS(ON)}$ (at $V_{GS}=3.1V$)	< 29mΩ
$R_{SS(ON)}$ (at $V_{GS}=2.5V$)	< 36mΩ

Typical ESD protection
HBM Class 3A


Orderable Part Number	Package Type	Form	Minimum Order Quantity
AOC2804	AlphaDFN 1.5x1.5_4	Tape & Reel	3000

Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Maximum	Units
Source-Source Voltage	V_{SS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Source Current(DC) ^{Note1}	I_S	4	A
Source Current(Pulse) ^{Note2}	I_{SM}	16	A
Power Dissipation ^{Note1}	P_D	0.7	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient $t \leq 10s$	$R_{\theta JA}$	115	140	$^\circ C/W$
Maximum Junction-to-Ambient Steady-State		145	180	$^\circ C/W$

Note 1. Mounted on 1in2 FR-4 board with 2oz. Copper.

Note 2. PW <300 μs pulses, duty cycle 0.5% max

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV _{SSS}	Source-Source Breakdown Voltage	I _S =250μA, V _{GS} =0V Test Circuit 6	20			V
I _{SSS}	Zero Gate Voltage Source Current	V _{SS} =20V, V _{GS} =0V Test Circuit 1 T _J =55°C			1 5	μA
I _{GSS}	Gate leakage current	V _{SS} =0V, V _{GS} =±10V Test Circuit 2			±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{SS} =V _{GS} , I _S =250μA Test Circuit 3	0.5	0.85	1.3	V
R _{SS(ON)}	Static Source to Source On-Resistance	V _{GS} =4.5V, I _S =3A Test Circuit 4 T _J =125°C	12	17.8	22	mΩ
			16	24.7	31	
		V _{GS} =4.0V, I _S =3A Test Circuit 4	12.5	18.8	24	mΩ
		V _{GS} =3.7V, I _S =3A Test Circuit 4	13	19.3	25	mΩ
		V _{GS} =3.1V, I _S =3A Test Circuit 4	14.5	21.6	29	mΩ
	V _{GS} =2.5V, I _S =3A Test Circuit 4	17.5	25.8	36	mΩ	
g _{FS}	Forward Transconductance	V _{SS} =5V, I _S =3A Test Circuit 3		20		S
V _{FSS}	Forward Source to Source Voltage	I _S =1A, V _{GS} =0V Test Circuit 5		0.65	1	V
DYNAMIC PARAMETERS						
R _g	Gate resistance	f=1MHz		2		KΩ
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{G1S1} =4.5V, V _{SS} =10V, I _S =3A		9.5		nC
t _{D(on)}	Turn-On DelayTime	V _{G1S1} =4.5V, V _{SS} =10V, R _L =3.3Ω, R _{GEN} =3Ω Test Circuit8		0.8		μs
t _r	Turn-On Rise Time			2.2		μs
t _{D(off)}	Turn-Off DelayTime			2.5		μs
t _f	Turn-Off Fall Time			6.5		μs

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

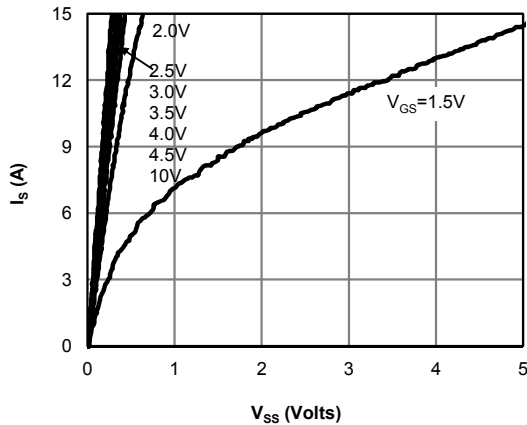


Figure 1: On-Region Characteristics

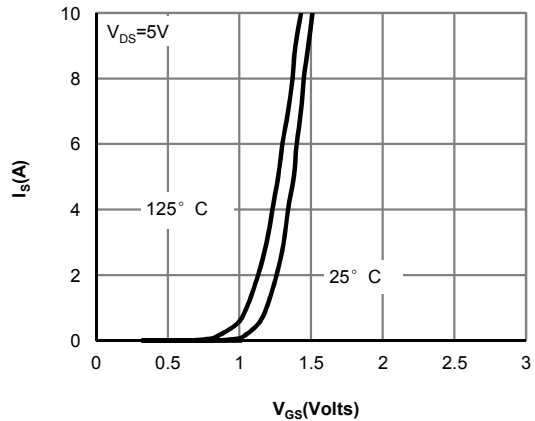


Figure 2: Transfer Characteristics

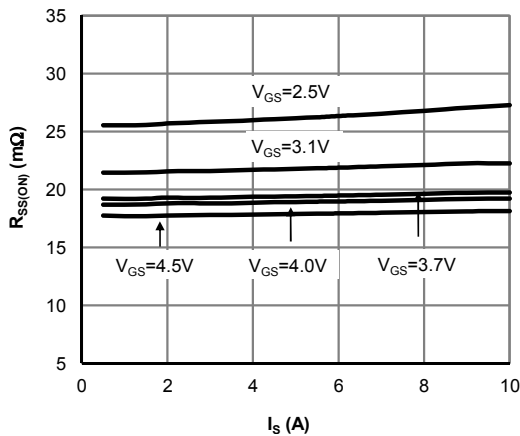


Figure 3: On-Resistance vs. Source Current and Gate Voltage

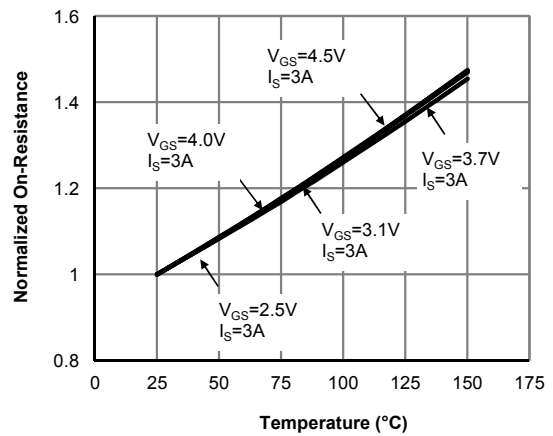


Figure 4: On-Resistance vs. Junction Temperature

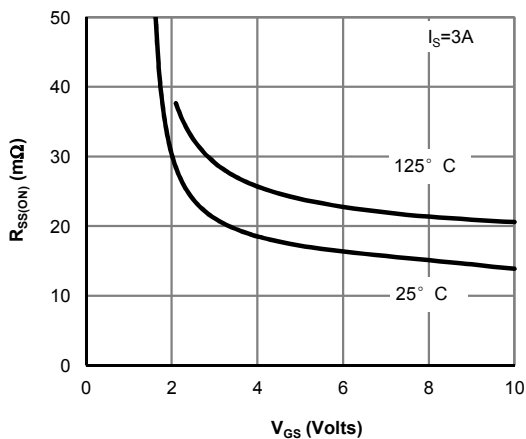


Figure 5: On-Resistance vs. Gate-Source Voltage

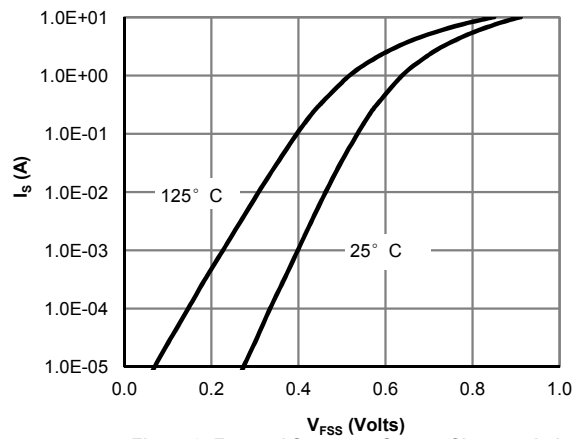


Figure 6: Forward Source to Source Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

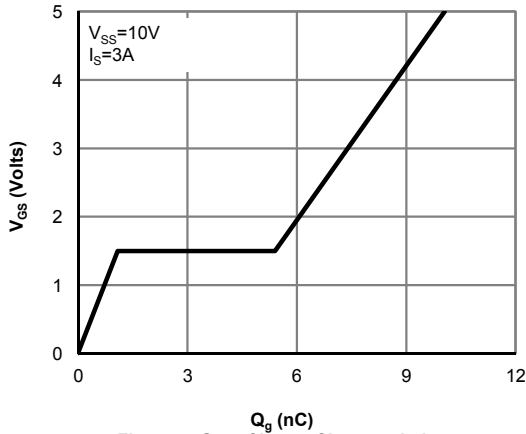


Figure 7: Gate-Charge Characteristics

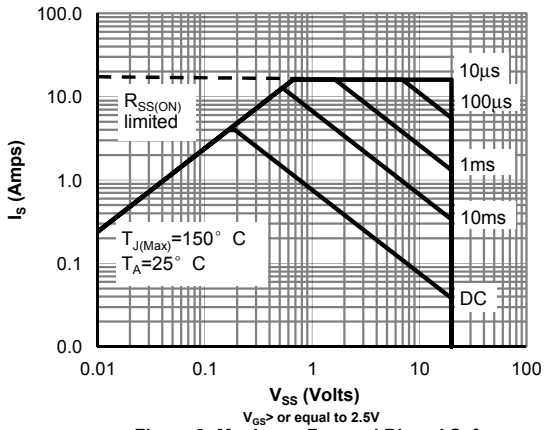


Figure 9: Maximum Forward Biased Safe Operating Area (Note1)

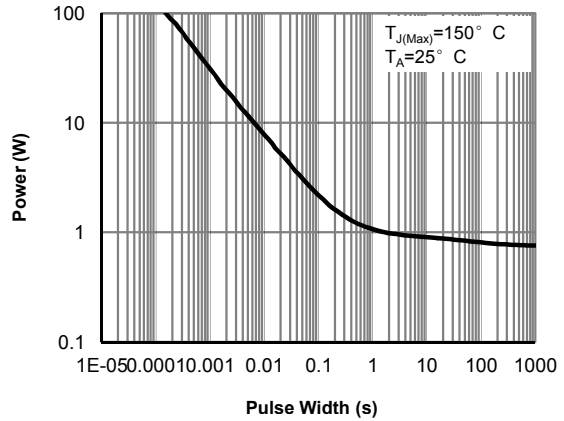


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note1)

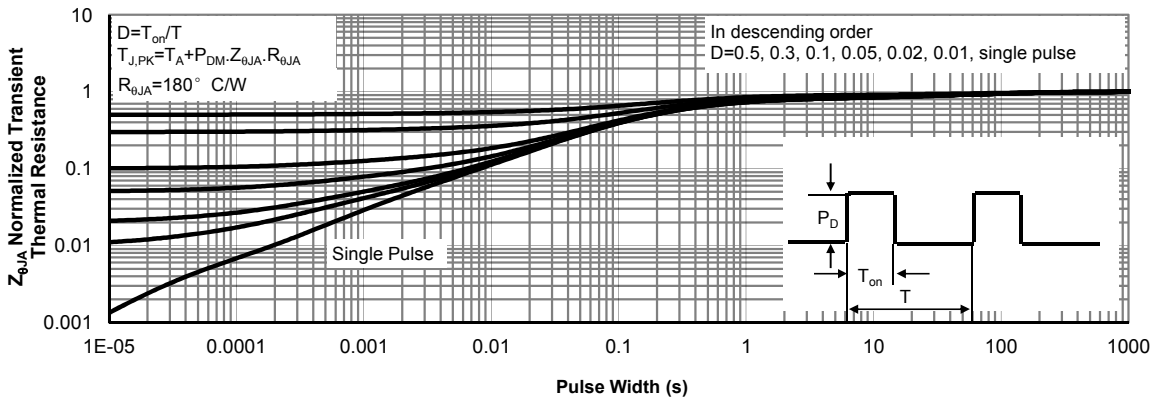


Figure 11: Normalized Maximum Transient Thermal Impedance (Note1)

