ANHI
Semiconductor

MOSFET Silicon N-Channel MOS

1. Applications

   Portable equipment, Battery powered system

2. Features

   Low drain-source on-resistance: RDS(ON) = 0.005Ω (typ.)
   High speed power switching

RoHS

Table 1   Key Performance Parameters

Parameter	Value	Unit
V_{DS} @ $T_{j,max}$	100	V
$R_{DS(on),max}$	8.4	mΩ
$Q_{g,typ}$	41.7	nC
$I_{D,pulse}$	106	A

3. Packaging and Internal Circuit

DFN5x6

Drain
Pin5,6,7,8

Gate
Pin4

Source
Pin1,2,3

AUN084N10
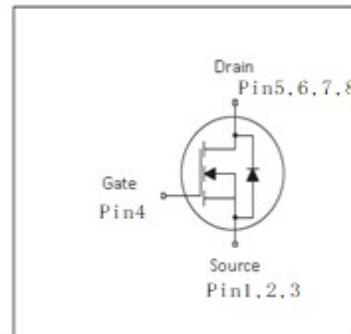
1 Maximum ratings

at T_j= 25°C, unless otherwise specified

Table 2 Maximum ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Continuous drain current[1]	I_D		-	68	A	T_C=25°C
Pulsed drain current[2]	$I_{D,pulse}$	-		106	A	T_C=25°C
Avalanche energy, single pulse	E_{AS}	-	-	7.2	mJ	Tc=25°C, V_{DD}=50V, L=10mH, RG=25Ω
Gate source voltage (static)	V_{GS}	-20	-	20	V	static;
Power dissipation	P_{tot}	-	-	66	W	T_C=25°C
Storage temperature	T_{stg}	-55	-	150	°C	
Operating junction temperature	T_j		-	150	°C	

[1] Limited by $T_{j,max}$. Maximum Duty Cycle D = 0.50
[2] Pulse width t_p limited by $T_{j,max}$
[3] Identical low side and high side switch with identical R_G

2   Thermal characteristics

Table 3   Thermal characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Thermal resistance, junction - case	R_{thJC}	-	-	1.9	°C/W	-
Thermal resistance, junction - ambient	R_{thJA}	-	-	50	°C/W	device on PCB, minimal footprint

3   Electrical characteristics

At T_j=25°C, unless otherwise specified

Table 4   Static characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Drain-source breakdown voltage	$V_{(BR)DSS}$	100	-	-	V	V_{GS}=0V, I_D=250uA
Gate threshold voltage	$V_{(GS)th}$	1		3	V	V_{DS}=V_{GS}, I_D=250uA
Zero gate voltage drain current	I_{DSS}	-	-	1000	nA	V_{DS}=80V, V_{GS}=0V, T_j=25°C
Gate-source leakage current	I_{GSS}	-	-	100	nA	V_{GS}=20V, V_{DS}=0V
Drain-source on-state resistance	$R_{DS(on)}$	-	0.007	0.0084	Ω	V_{GS}=10V, I_D=20A, T_j=25°C
		-	0.010	0.013	Ω	V_{GS}=4.5V, I_D=10A, T_j=25°C
Gate resistance (Intrinsic)	R_G	-	2	-	Ω	f=1MHz, open drain

Table 5   Dynamic characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Input capacitance	C_{iss}	-	1930	-	pF	*Vds=50V,Vgs=0V f=1MHz*
Output capacitance	C_{oss}	-	387	-	pF	*Vds=50V,Vgs=0V f=1MHz*
Reverse transfer capacitance	C_{rss}	-	30	-	pF	*Vds=50V,Vgs=0V f=1MHz*
Turn-on delay time	$t_{d(on)}$	-	10	-	ns	*VDD=50V,VGS=10V,RG=3Ω ID=1A*
Rise time	t_r	-	20	-	ns	*VDD=50V,VGS=10V,RG=3Ω ID=1A*
Turn-off delay time	$t_{d(off)}$	-	30	-	ns	*VDD=50V,VGS=10V,RG=3Ω ID=1A*
Fall time	t_f	-	14	-	ns	*VDD=50V,VGS=10V,RG=3Ω ID=1A*

Table 6   Gate charge characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Gate to source charge	Q_{gs}	-	5.5	-	nC	*VDS=50V,VGS=0 to 10V ID=20A*
Gate to drain charge	Q_{gd}	-	12.3	-	nC	*VDS=50V,VGS=0 to 10V ID=20A*
Gate charge total	Q_g	-	41.7	-	nC	*VDS=50V,VGS=0 to 10V ID=20A*

Table 7   Reverse diode characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Diode forward voltage	V_{SD}	-	0.8	-	V	V_{GS}=0V, I_F=20A, T_j=25°C
Reverse recovery time	t_{rr}	-	48	-	ns	*VR=50V,IF=20A, diF/dt=100A/us*
Reverse recovery charge	Q_{rr}	-	78.3	-	uC	*VR=50V,IF=20A, diF/dt=100A/us*

4   Package Outlines
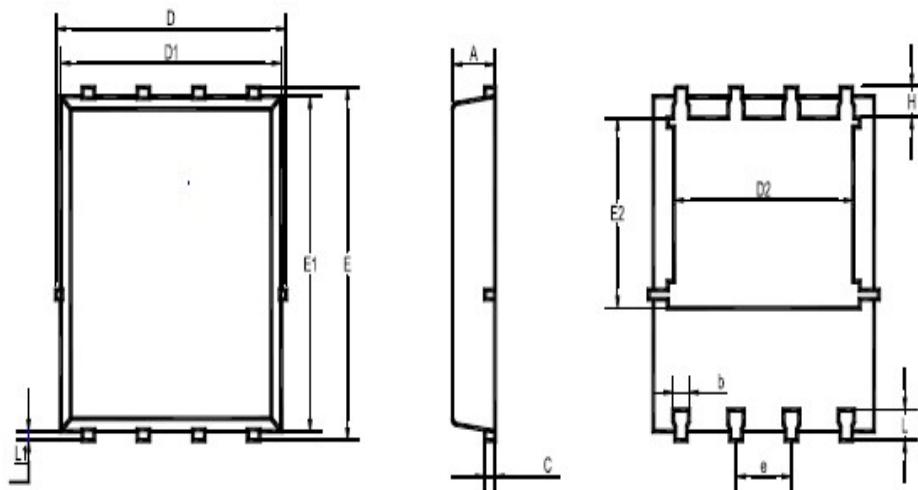
UNIT	A	b	C	D	D1	D2	E	E1	E2	e	L	L1	H
mm	1.12	0.51	0.34	5.26	5.1	4.5	6.25	6	3.66	1.37	0.71	0.2	0.71
	0.9	0.33	0.11	4.7	4.7	3.56	5.75	5.6	3.18	1.17	0.35	0.06	0.35

Recommended Soldering Footprint
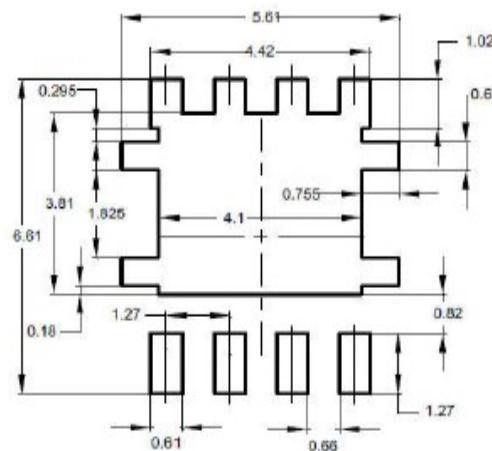
Figure3：Outline PG-DFN5x6

Revision History

Revision	Date	Subjects (major changes since last revision)
1.0	2021-01-21	Preliminary version