

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design

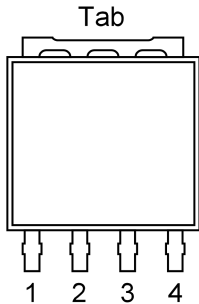
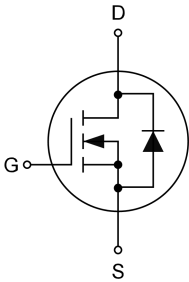
1.2 Applications

- ☒ Motor drivers
- ☒ DC/DC Converter

1.3 Quick reference

- ☒ $BV \geq 60\text{ V}$
- ☒ $P_{tot} \leq 375\text{ W}$
- ☒ $I_D \leq 300\text{ A}$
- ☒ $R_{DS(ON)} \leq 0.75\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- ☒ $R_{DS(ON)} \leq 1.25\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 Top View LFPAK 5x6	
4	Gate		
Tab	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _C =25°C	60	-	V
V _{GS}	Gate-Source Voltage	T _C =25°C	-	±20	V
I _D	Drain Current	T _C =25°C, V _{GS} =10 V	-	300	A
		T _C =100°C, V _{GS} =10 V	-	300	A
I _{DM} *	Pulsed Source Current	T _C =25°C, V _{GS} =10 V	-	1200	A
P _{tot}	Total Power Dissipation	T _C =25°C	-	375	W
T _{stg}	Storage Temperature		-55	175	°C
T _J	Junction Temperature		-	175	°C
I _S	Diode Forward Current	T _C =25°C	-	300	A
E _{AS}	Single Pulsed Avalanche Energy	V _{DD} =40 V, L=1.0 mH	-	100	mJ
R _{θJA}	Thermal Resistance-Junction to Ambient		-	60	°C/W
R _{θJC}	Thermal Resistance-Junction to Case		-	0.4	

Notes:

- * Pulse width ≤ 300 μs, duty cycle ≤ 1%.
- ** Surface mounted on 1 in² pad area, t ≤ 10 sec.
- *** Limited by bonding wire.

4. Marking Information

Product Name	Marking
KJ007N06LF	KJ007N06LF XXXXXX-X

5. Ordering Code

Product Name	Package	Reel size	Tape width	Quantity(pcs)
KJ007N06LF	LFPAK 5x6	13"	12 mm	5000

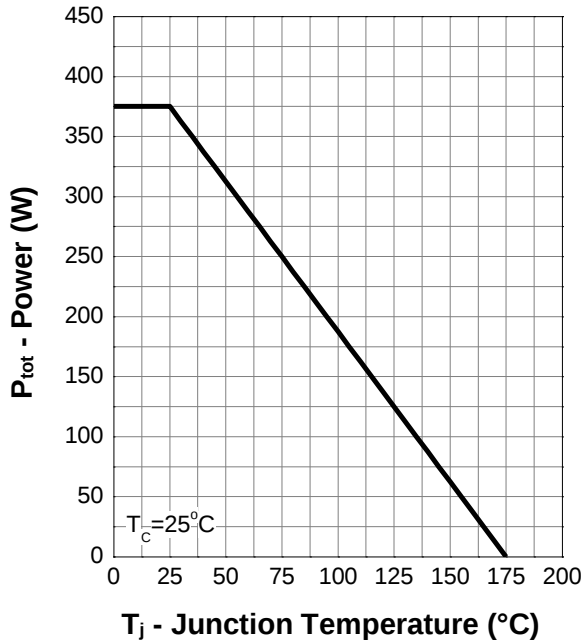
Note: KUAIJIEXIN defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C)

6. Electrical Characteristics (T_A=25°C unless otherwise noted)

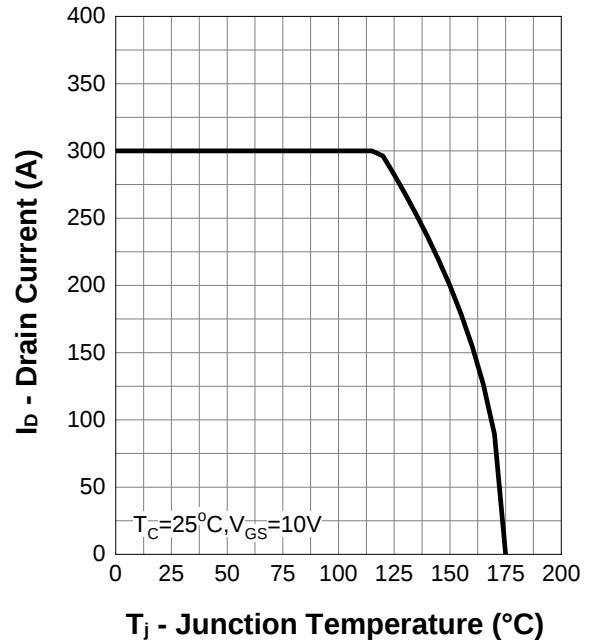
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _{DS} =250 μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	1.0	-	2.5	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} =48 V, V _{GS} =0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±20 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10 V, I _{DS} =30 A	-	0.67	0.75	mΩ
		V _{GS} =4.5 V, I _{DS} =20 A	-	1.10	1.25	
Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =30 A, V _{GS} =0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =30 A, dI _{SD} /dt=100 A/μs	-	85	-	ns
Q _{rr}	Reverse Recovery Charge		-	120	-	nC
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =30 V, Frequency=1 MHz	-	7204	-	pF
C _{oss}	Output Capacitance		-	2154	-	
C _{rss}	Reverse Transfer Capacitance		-	249	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =30 V, V _{GEN} =10 V, R _G =3.9 Ω, R _L =1 Ω, I _{DS} =30 A	-	16	-	ns
t _r	Turn-on Rise Time		-	56	-	
t _{d(off)}	Turn-off Delay Time		-	149	-	
t _f	Turn-off Fall Time		-	96	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =30 V, V _{GS} =10 V, I _{DS} =30 A	-	155	-	nC
Q _{gs}	Gate-Source Charge		-	25	-	
Q _{gd}	Gate-Drain Charge		-	35	-	

7. Typical Characteristics

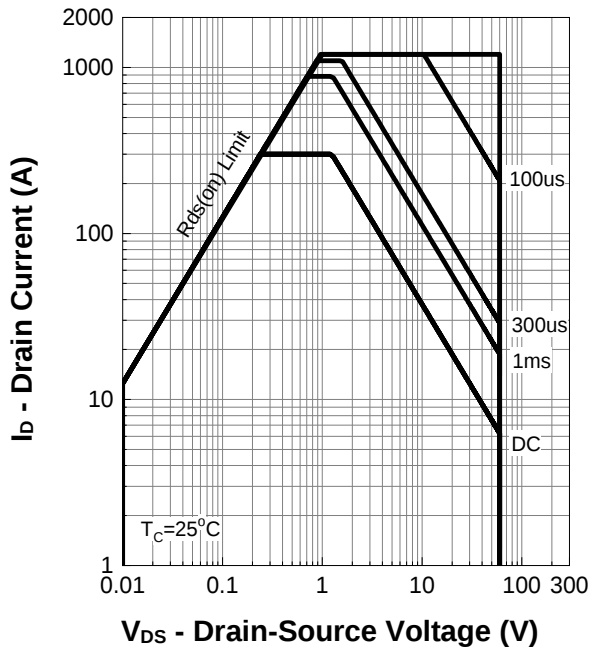
Power Capability



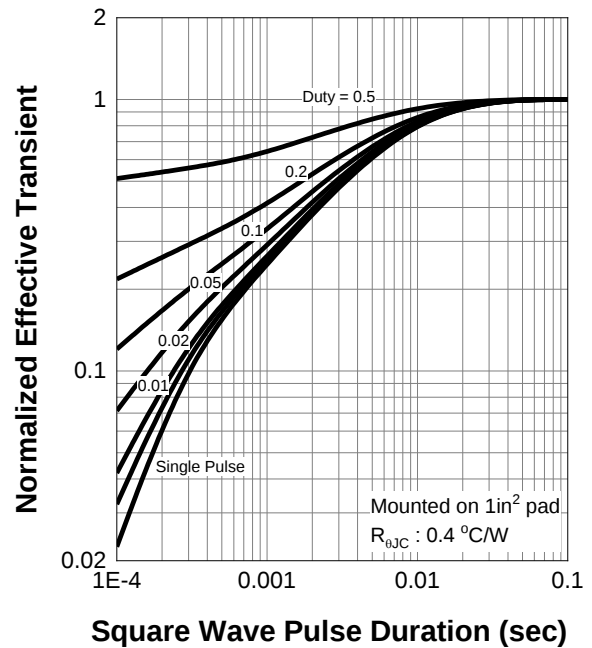
Current Capability



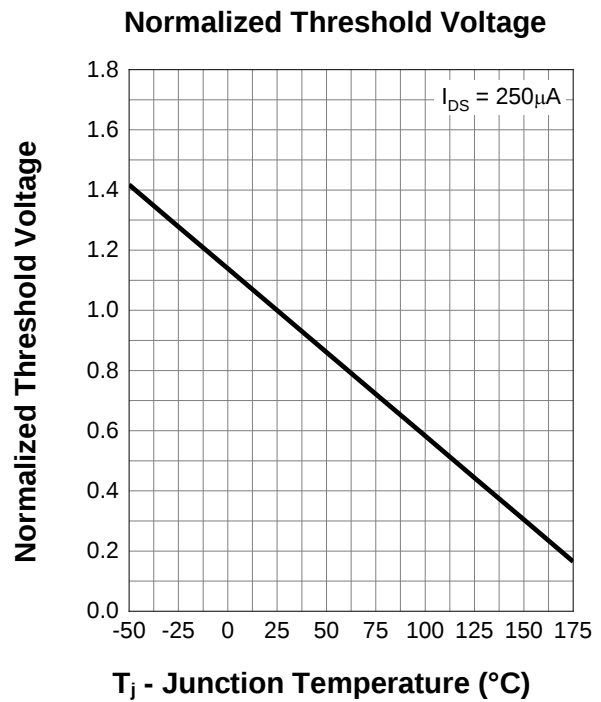
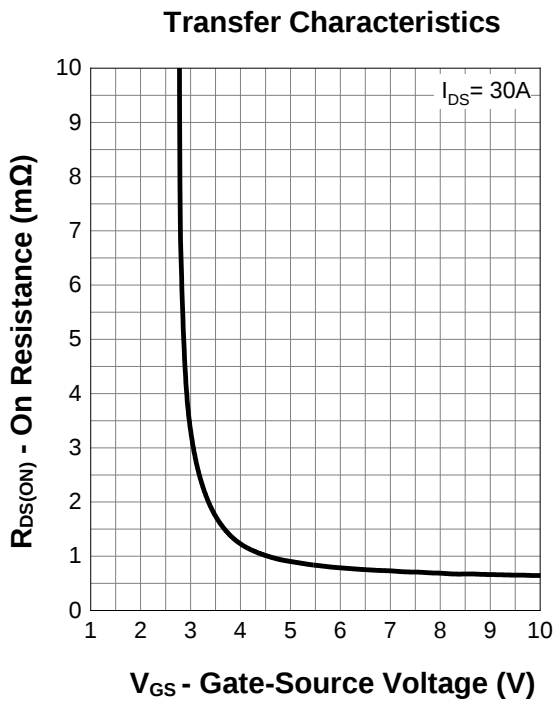
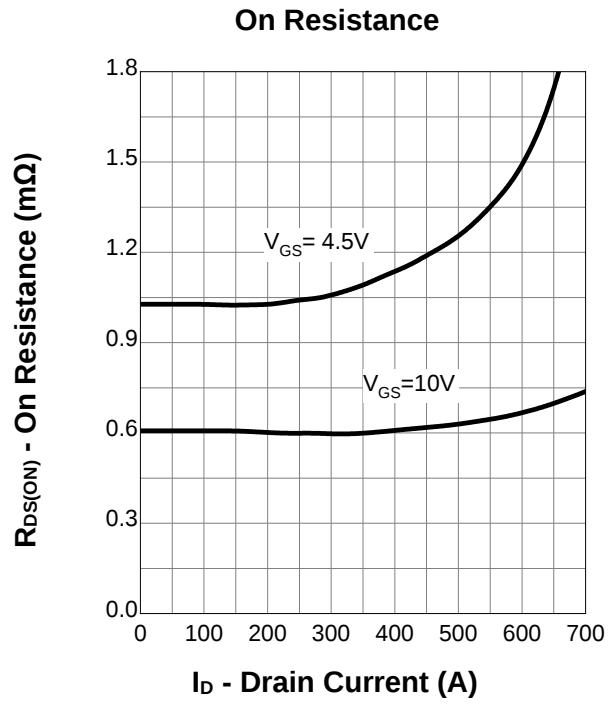
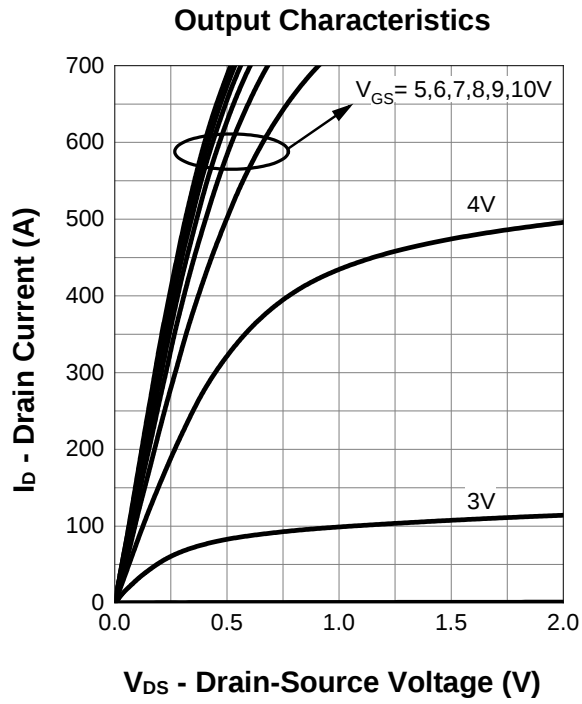
Safe Operation Area



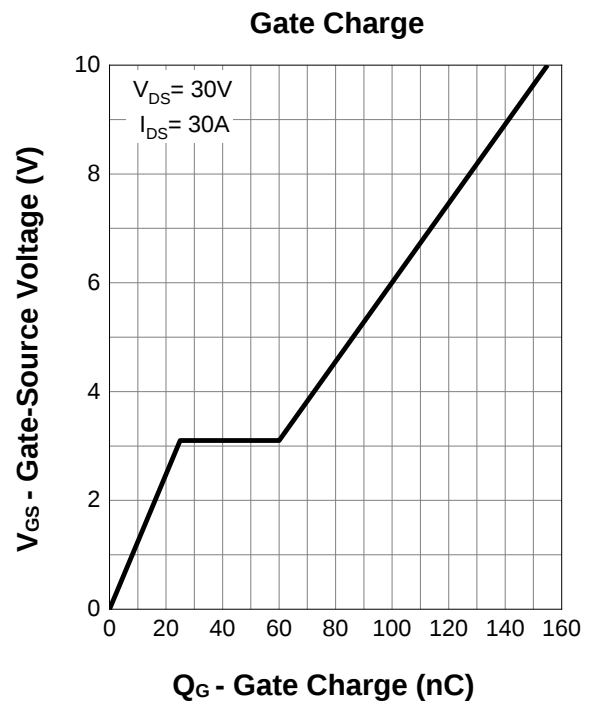
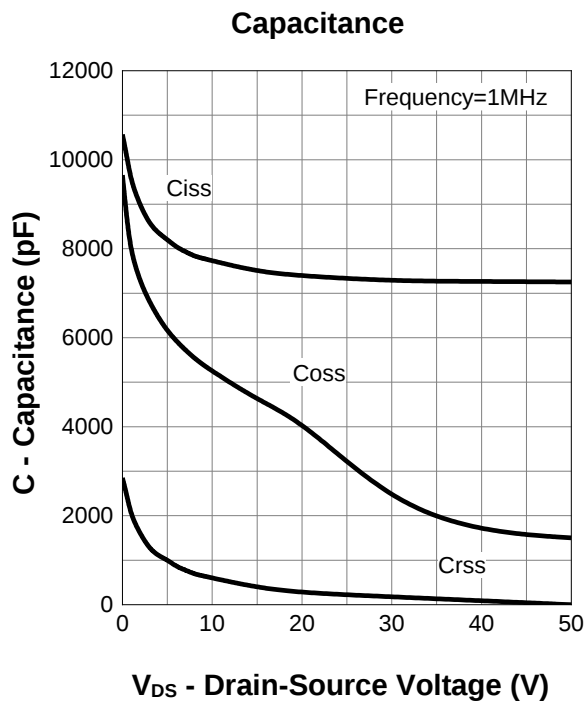
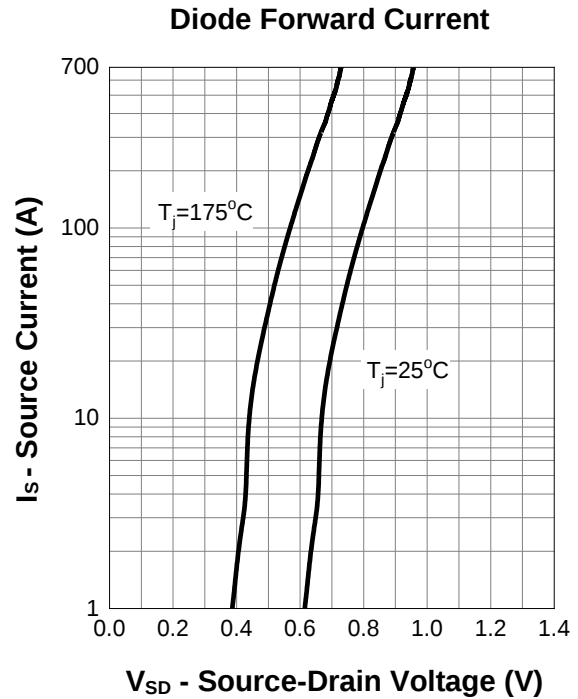
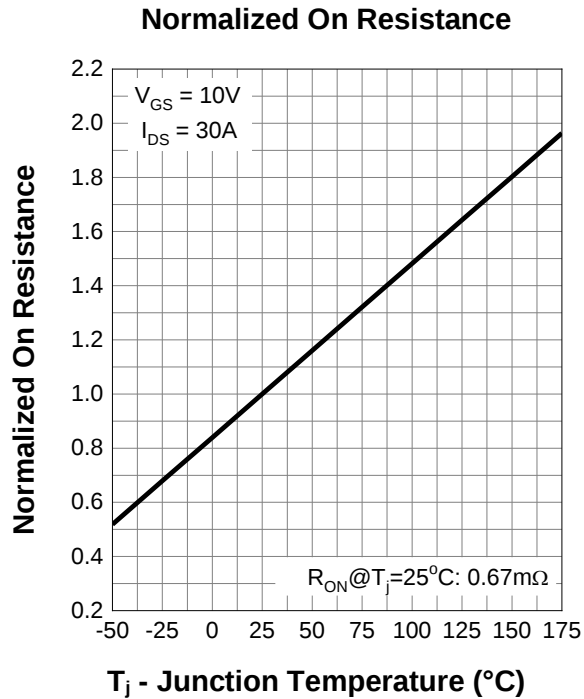
Transient Thermal Impedance



7. Typical Characteristics (Cont.)

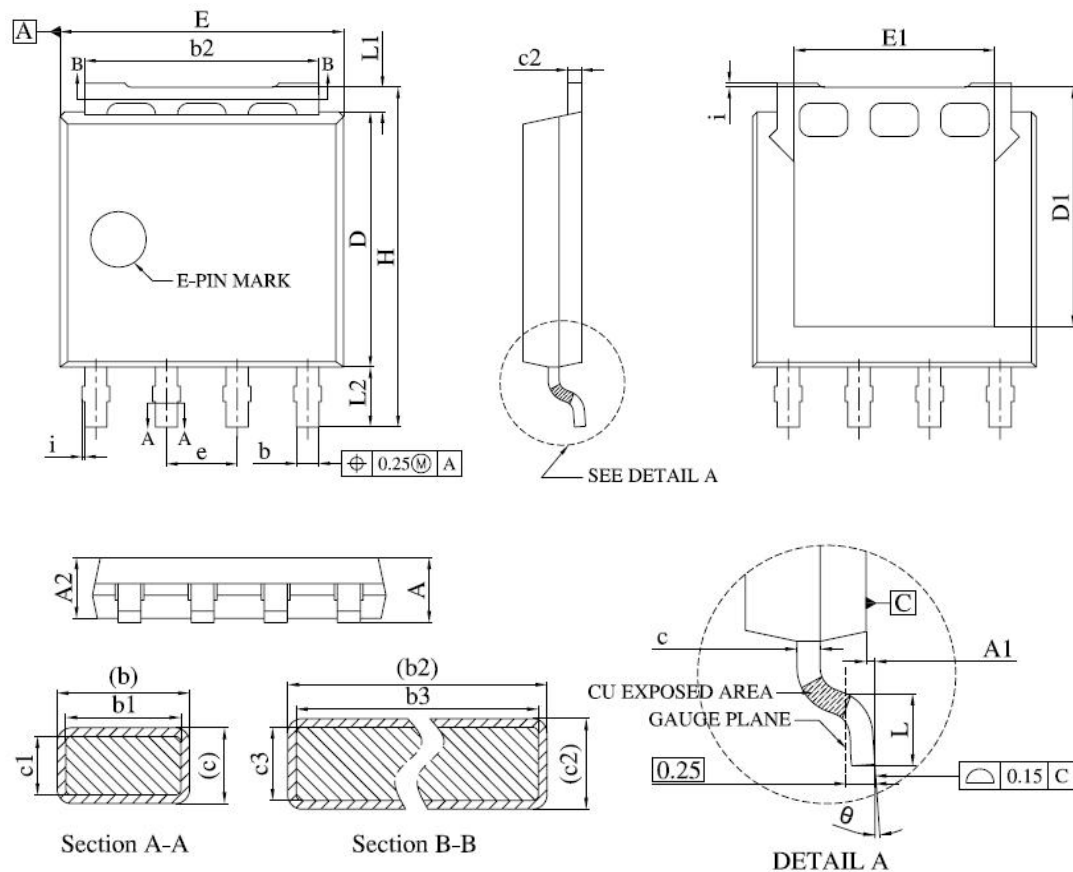


7. Typical Characteristics (Cont.)



8. Package Dimensions

LFPK 5x6 Package



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.00	1.30
A1	0	0.15
A2	0.98	1.12
b	0.35	0.50
b1	0.32	0.46
b2	4.02	4.41
b3	4.00	4.37
c	0.19	0.25
c1	0.17	0.23
c2	0.24	0.30
c3	0.22	0.28

Symbol	Dimensions in Millimeters	
	MIN.	MAX.
D	4.45	4.70
D1	-	4.45
E	4.95	5.30
E1	3.50	3.70
e	1.27 BSC	
H	5.95	6.25
i	-	0.25
L	0.40	0.85
L1	0.27	0.57
L2	0.80	1.30
θ	0°	8°