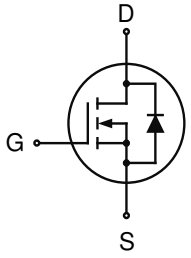
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RM6N700LD

N-Channel Super-junction Power Mosfet

Features

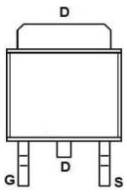
- 700V,6A
  $R_{DS(ON)}$ <900mΩ@V_{GS}=10V TYP:780mΩ
- Super Junction technology
- Much lower Ron*A performance for On-state efficiency
- Much lower FOM for fast switching efficiency



Schematic Diagram

Applications

- Power faction correction (PFC)
- Solar/Renewable/UPS
- Charger
- Power Supply
- Halogen-free



TO-252

Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity(PCS)
6N700	RM6N700LD	TO-252	-W	13inch	2500

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current (T_c =25℃)	I_D	6	A
Continuous Drain Current (T_c=100℃)	I_D	3.8	A
Pulsed Drain Current (1)	I_{DM}	24	A
Single Pulsed Avalanche Energy (2)	E_{AS}	60	mJ
Drain Power Dissipation	P_D	71	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.76	℃/W
Thermal Resistance- Junction to Ambient	$R_{\theta JA}$	134	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

2025-01/59
REV:O

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

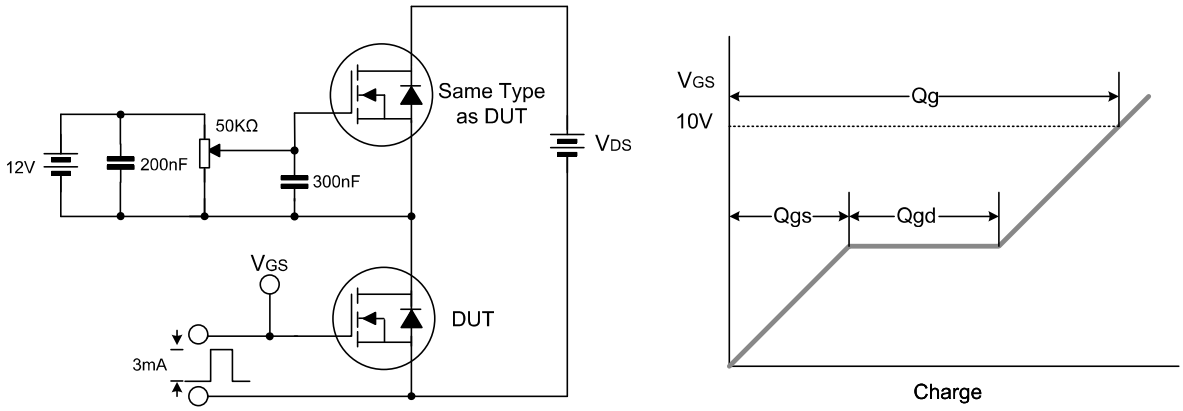
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	700	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =700V, V_{GS} = 0V	-	-	1	uA
		V_{DS} =700V, V_{GS} = 0V T_j=150℃			10	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	3.0	3.5	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =3A	-	780	900	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =100V, V_{GS} =0V, f =1.0MHz	-	327	-	pF
Output Capacitance	C_{oss}		-	25	-	
Reverse Transfer Capacitance	C_{rss}		-	23	-	
Gate Resistance	Rg	f =1.0MHz		9.0		Ω
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=400V, I_D=3A, R_G=25Ω, V_G=10V	-	12.6	-	ns
Turn-on rise time	t_r		-	13.4	-	
Turn-off delay time	$t_{d(off)}$		-	50	-	
Turn-off fall time	t_f		-	61	-	
Total Gate Charge	Qg	V_{DS}=480V, I_D=3A, V_{GS}=10V	-	11.0	-	nC
Gate-Source Charge	Qgs		-	2.5	-	
Gate-Drain Charge	Qgd		-	4.6	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_c=25℃, V_{GS} =0V, I_S=3A	-	0.83	1.0	V
Diode Forward current	I_S	T_c =25℃	-	-	6	A
Body Diode Reverse Recovery Time	trr	T_c=25℃， IF=3A,di/dt=100A/us		185		ns
Body Diode Reverse Recovery Charge	Qrr	T_c=25℃， IF=3A,di/dt=100A/us		1.47		uc

Notes:

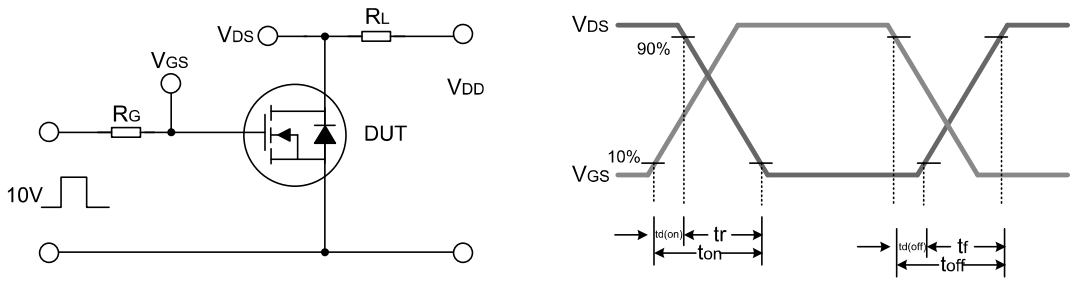
1. Pluse width limited by maximum junction temperature
2. L=60mH, IAS=1.4A, VDD=150V, VG=10V, RG=30Ω, starting TJ=25°C
3. Pulse Test: Pulse width ≤300μs, Duty cycle≤2%
4. Essentially independent of operating temperature

Test Circuit

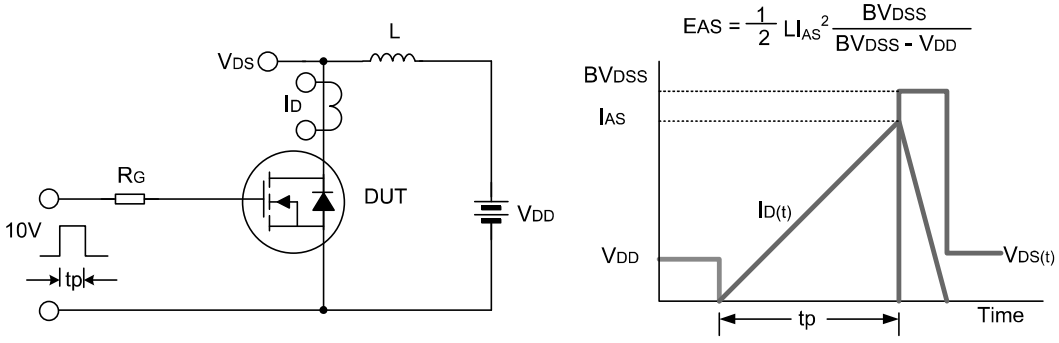
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching Test Circuit & Waveform



RATING AND CHARACTERISTICS CURVES (RM6N700LD)

Fig 1. Output Characteristics (Tj=25℃)

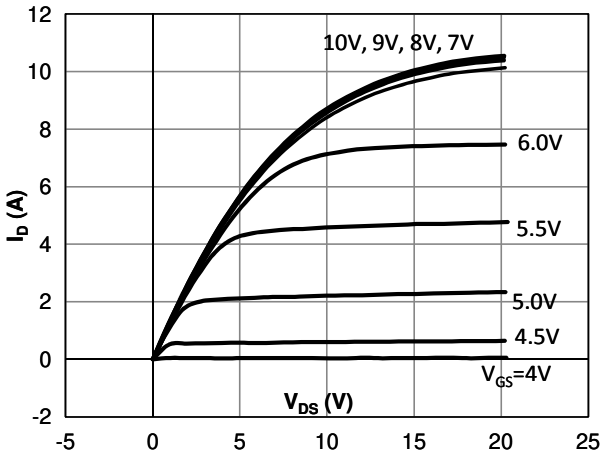


Fig 2. Output Characteristics (Tj=150℃)

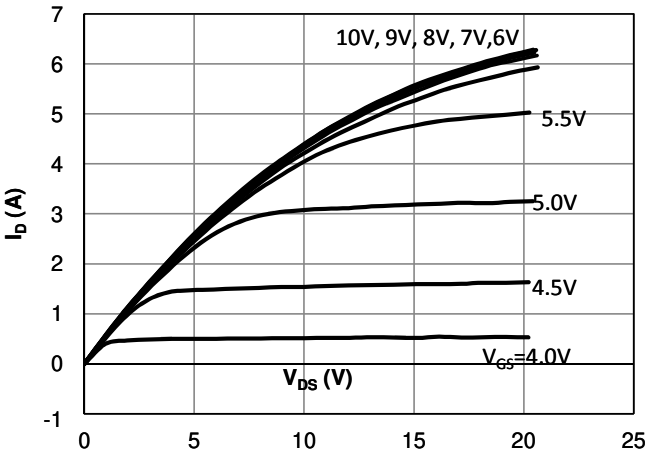


Fig 3: Transfer Characteristics

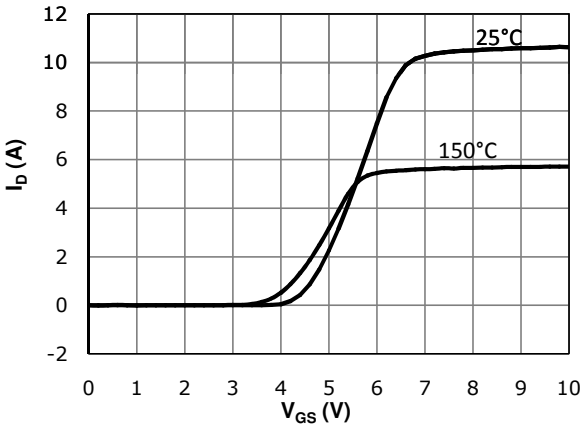


Fig 4: V_{TH} Vs Tj Temperature Characteristics

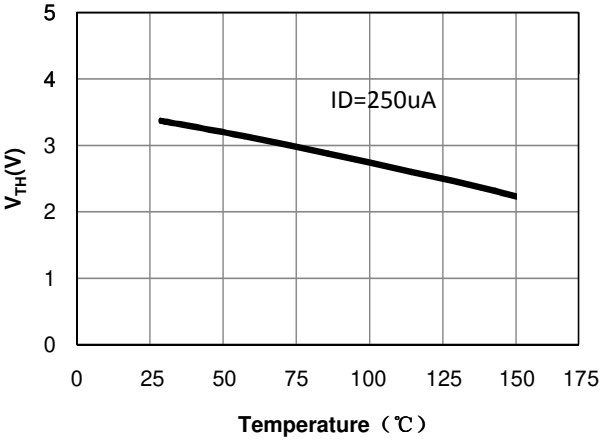


Fig 5: Rdson Vs Ids Characteristics(Tc=25℃)

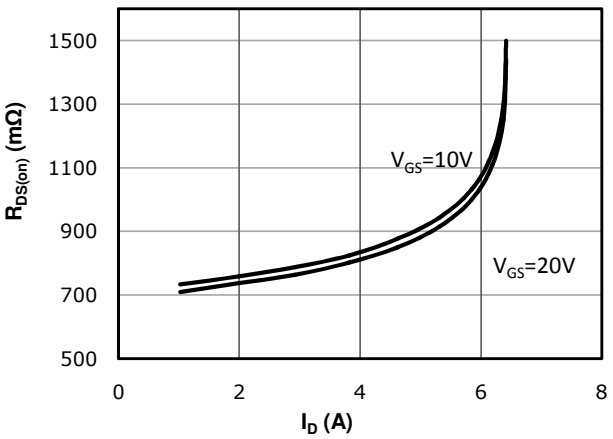
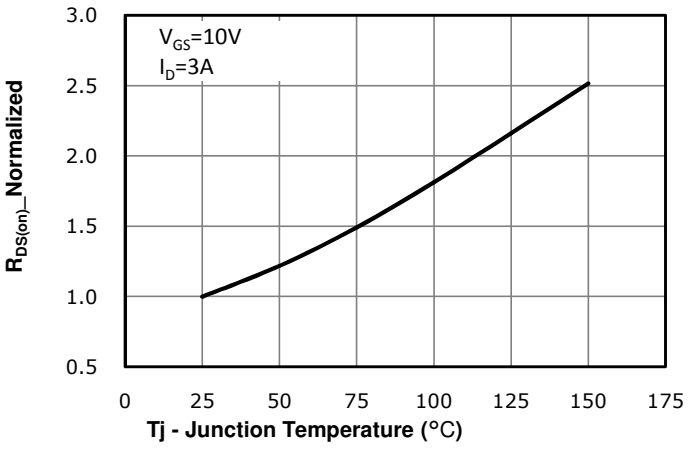


Fig 6: Rds(on) vs. Temperature



RATING AND CHARACTERISTICS CURVES (RM6N700LD)

Fig 7: BVDSS vs. Temperature

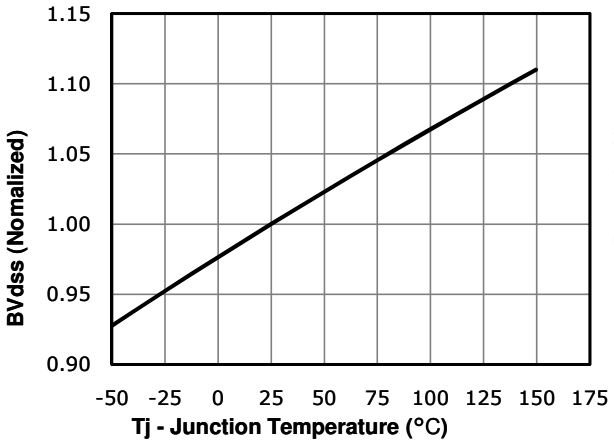


Fig 8: Rds(on) vs Gate Voltage

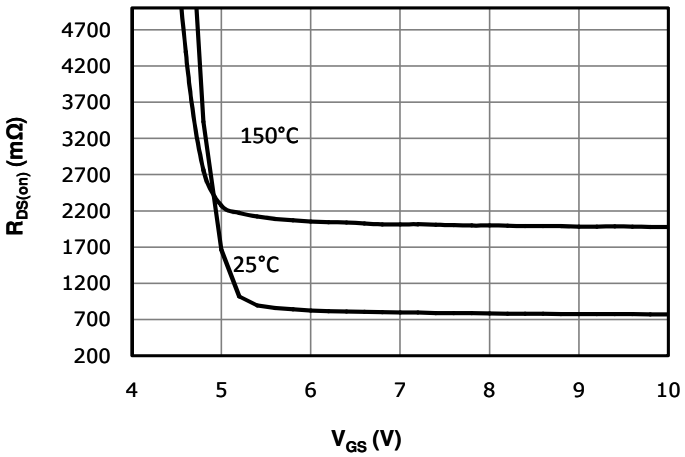


Fig 9: Body-diode Forward Characteristics

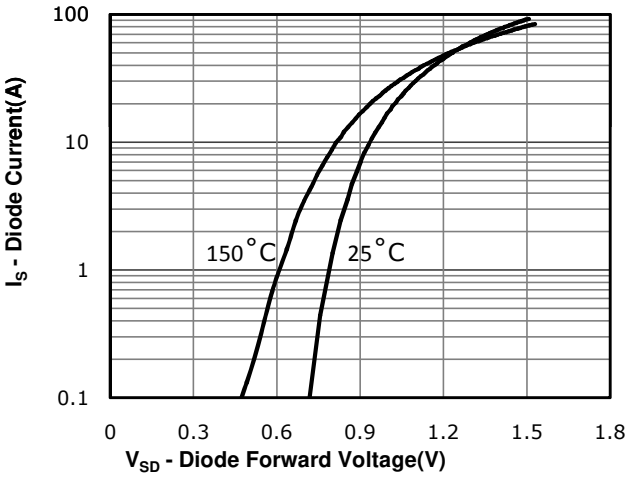


Fig 10: Gate Charge Characteristics

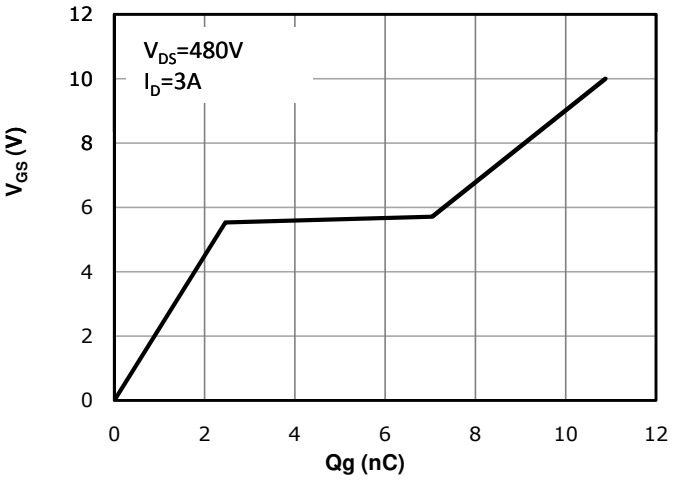


Fig 11: Capacitance Characteristics

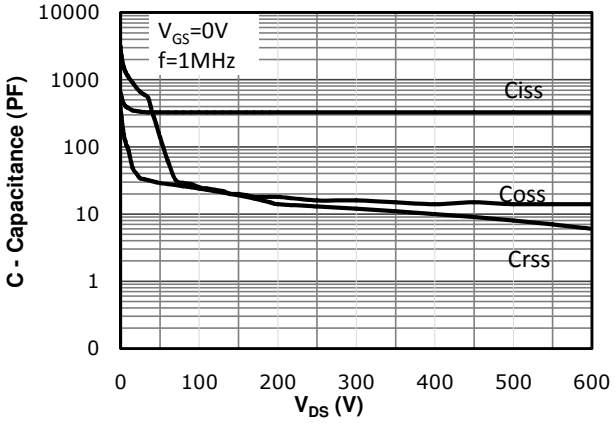
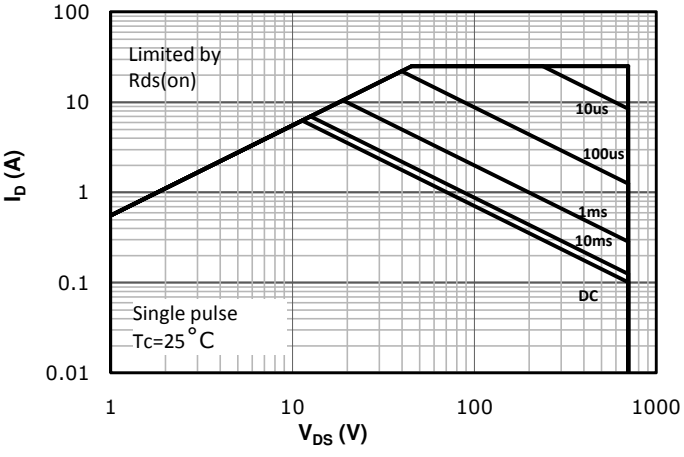
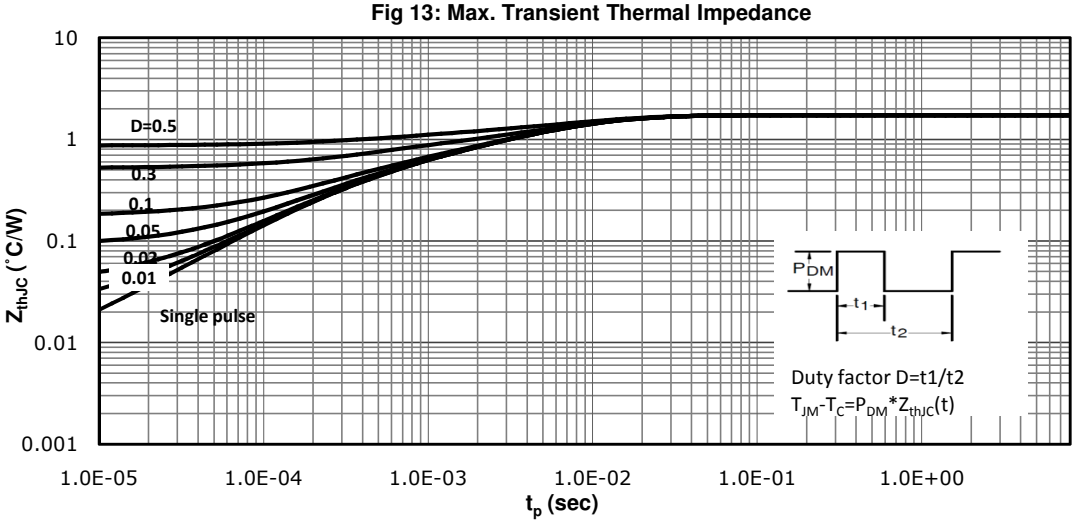


Fig 12: Safe Operating Area



RATING AND CHARACTERISTICS CURVES (RM6N700LD)

Fig 13: Max. Transient Thermal Impedance



RECTRON

Marking on the body

Rectron Logo →  Y Y W W

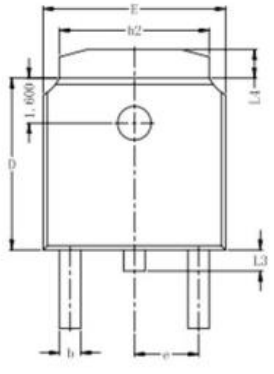
Year – Code
(Y:24-----2024
25-----2025.....)

Week – code
(WW:01~52)

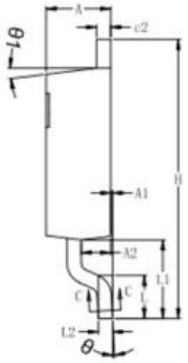
6 N 7 0 0 ← Part No.

Package Dimensions

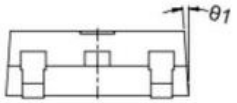
TO-252



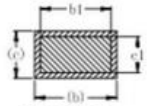
TOP VIEW



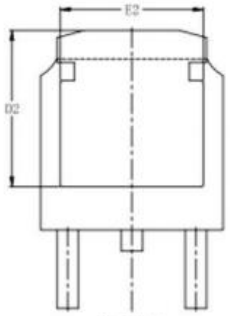
SIDE VIEW(Right)



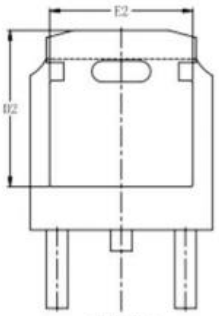
SIDE VIEW(Front)



SECTION:C-C



OPTION 1
BOTTOM VIEW



OPTION 2
BOTTOM VIEW

DIM / SYMBOL	MIN.	NOM.	MAX.
A	2.200	2.300	2.400
A1	0.000	0.070	0.130
A2	0.950	1.050	1.150
b	0.700	0.800	0.900
b1	0.660	0.760	0.860
b2	5.134	5.334	5.534
c	0.448	0.548	0.648
c1	0.458	0.508	0.558
c2	0.448	0.548	0.648
D	6.000	6.100	6.200
D2	5.372	5.572	5.772
E	6.400	6.500	6.600
E2	4.900	5.100	5.300
e		2.286 BSC.	
H	9.700	9.900	10.100
L	1.380	1.525	1.725
L1	2.588	2.788	2.988
L2		0.508 BSC.	
L3	0.600	0.750	0.950
L4	0.812	1.012	1.212
θ	1°	3°	5°
θ1	6°	7°	8°

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