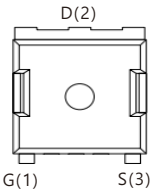
WGD100N15H

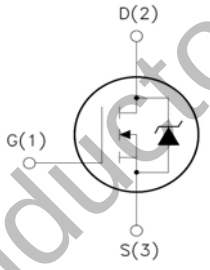
Features:

- ☐ Low Intrinsic Capacitances
- ☐ Excellent Switching Characteristics
- ☐ Extended Safe Operating Area
- ☐ Ultra Low Gate Charge:Qg=30nC (Typ.)
- ☐ VDSS=150V, ID=100A
- ☐ Rds(on):8.5mΩ(Typ.) @VG=10V
- ☐ 100% Avalanche Tested

PTO-252

RoHS COMPLIANT





1.Gate (G)
2.Drain (D)
3.Source (S)

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	100	A
Drain Current-Continuous(T_C=100℃)	I_D (100℃)	61	A
Pulsed Drain Current ①	I_{DM}	320	A
Maximum Power Dissipation	P_D	188	W
Single pulse avalanche energy ②	E_{AS}	331	mJ
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	42	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Case	$R_{\theta Jc}$	0.8	℃/W

WildGoose Semiconductor

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_C = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	150	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current(Tc=25℃)	V_{DS}=150V,V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(Tc=125℃)	V_{DS}=150V,V_{GS}=0V	--	--	100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±25V,V_{DS}=0V	--	--	±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	2.5	3.2	4.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance③	V_{GS}=10V, I_D=20A	--	8.5	10.0	mΩ
I_S	Diode Continuous Current	TC = 25°C			188	A
Dynamic Electrical Characteristics @ T_C= 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=75V,V_{GS}=0V, f=1MHz	--	2181	--	pF
C_{oss}	Output Capacitance		--	363	--	pF
C_{rss}	Reverse Transfer Capacitance		--	7.9	--	pF
Q_g	Total Gate Charge	V_{DS}=75V,I_D=20A, V_{GS}=10V	--	30	--	nC
Q_{gs}	Gate-Source Charge		--	7.5	--	nC
Q_{gd}	Gate-Drain Charge		--	6.5	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=75V, R_L=3.75Ω, R_G=6Ω, V_{GS}=10V	--	12.5	--	nS
t_r	Turn-on Rise Time		--	24	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	30	--	nS
t_f	Turn-Off Fall Time		--	26	--	nS
Source- Drain Diode Characteristics@ T_C = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=1A,V_{GS}=0V	--	0.71	1.2	V
t_{rr}	Reverse Recovery Time	I_F = 20A, dIF/dt = 100A/us	--	99	--	nS
Q_{rr}	Reverse Recovery Charge			318		nC

NOTE:

① Repetitive rating; pulse width limited by max. junction temperature.

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.3mH,V_{DD} = 75V,, V_{GS} =10V. Part not recommended for use above this value

③ Pulsewidth ≤ 300μs; duty cycle≤ 2%.

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Typical Electrical & Thermal Characteristics

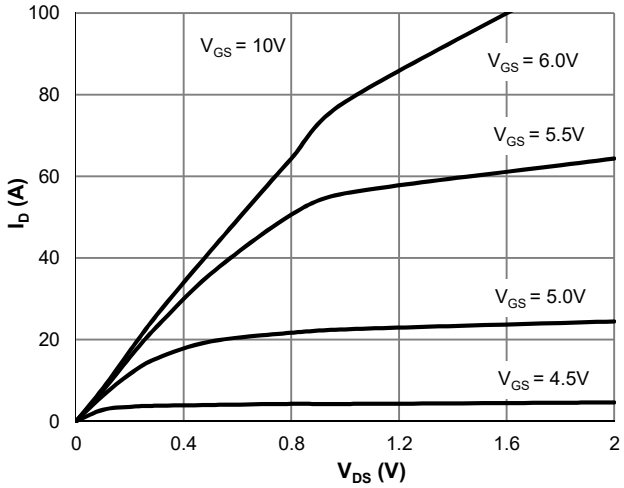


Figure 1: Saturation Characteristics

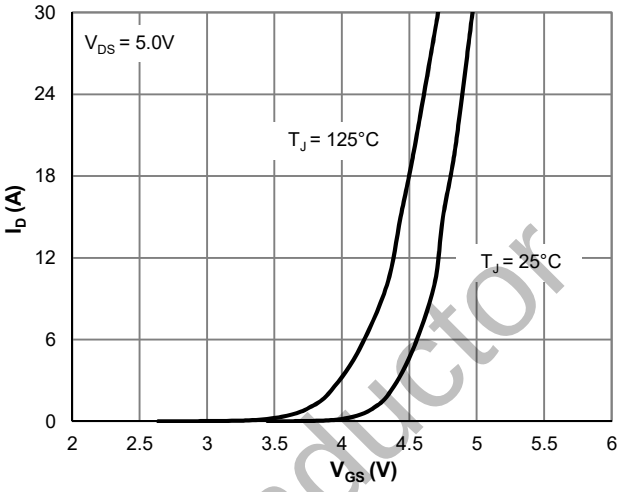


Figure 2: Transfer Characteristics

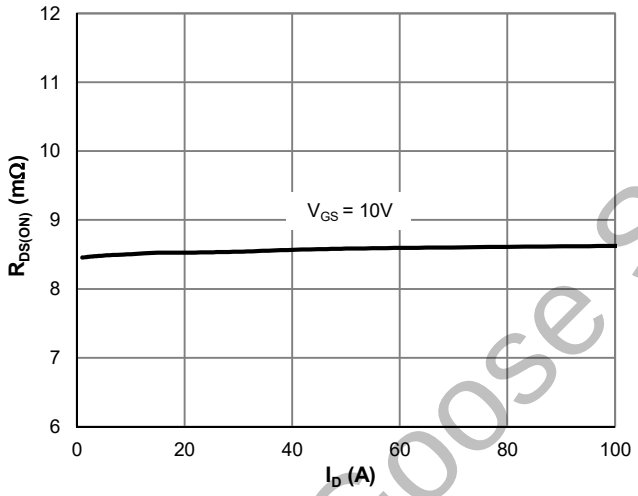


Figure 3: $R_{DS(ON)}$ vs. Drain Current

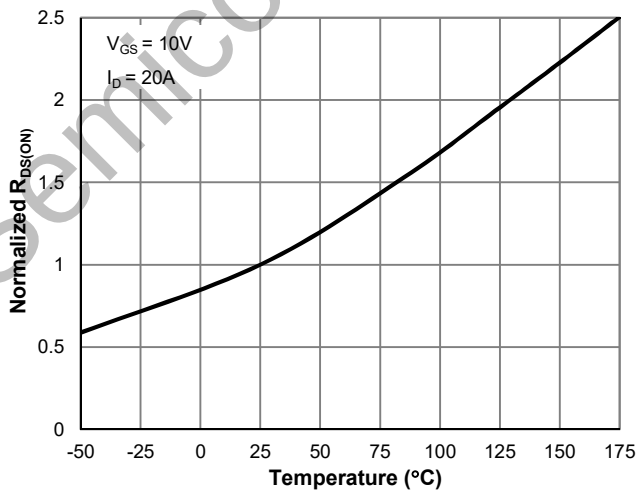


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

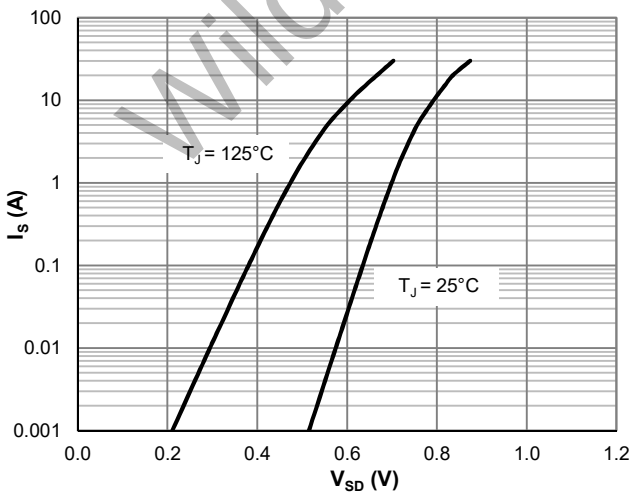


Figure 5: Body-Diode Characteristics

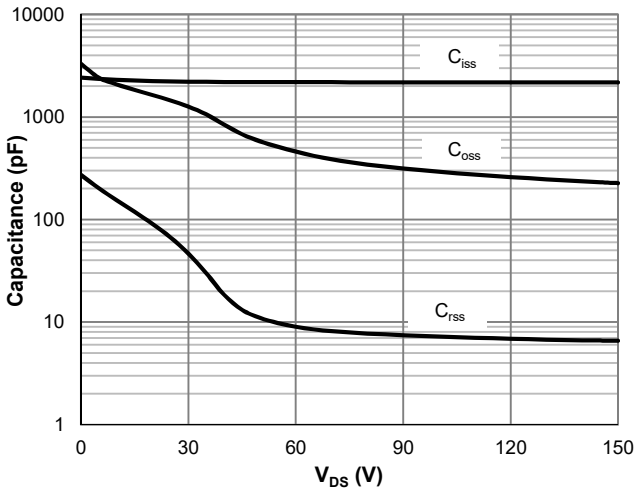


Figure 6: Capacitance Characteristics

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Typical Electrical & Thermal Characteristics

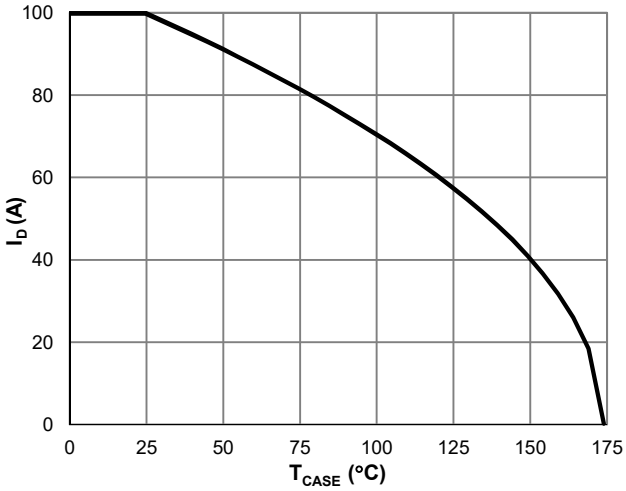


Figure 7: Current De-rating

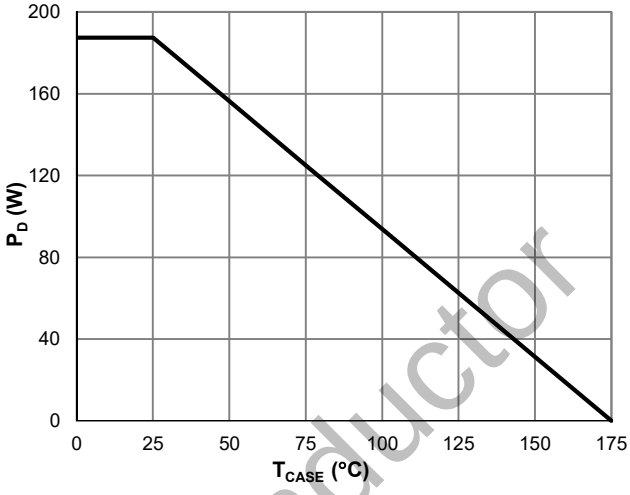


Figure 8: Power De-rating

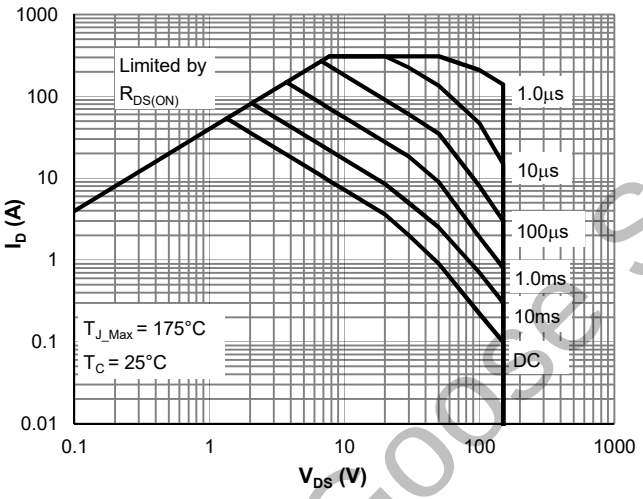


Figure 9: Maximum Safe Operating Area

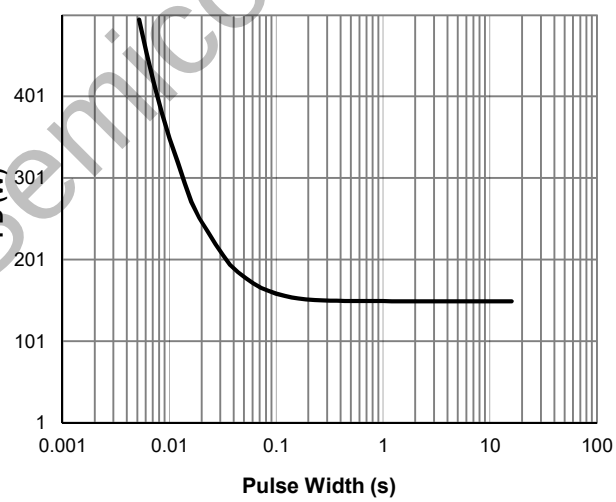


Figure 10: Single Pulse Power Rating, Junction-to-Case

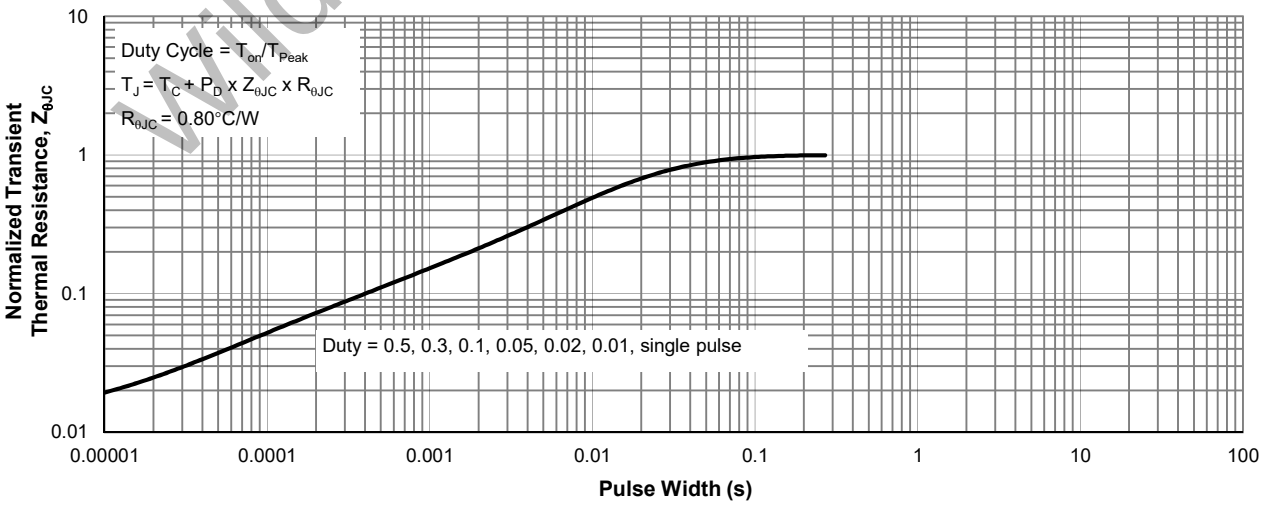
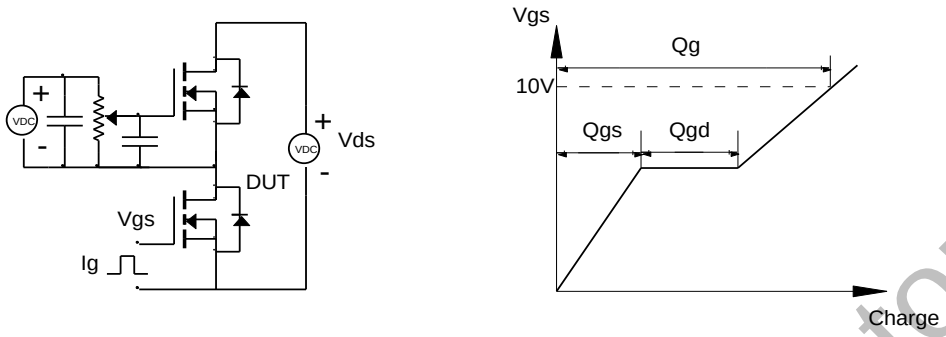


Figure 11: Normalized Maximum Transient Thermal Impedance

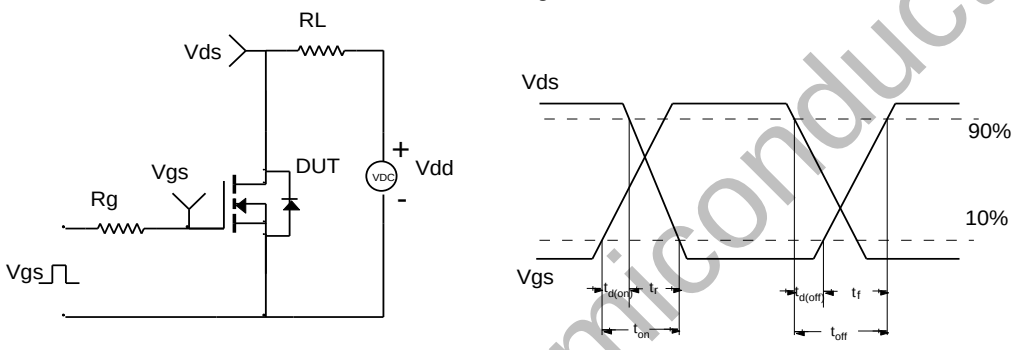
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Test Circuit

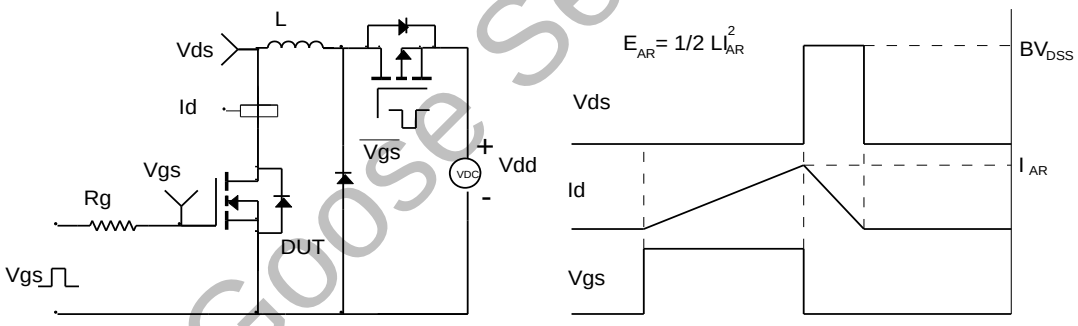
Gate Charge Test Circuit & Waveform



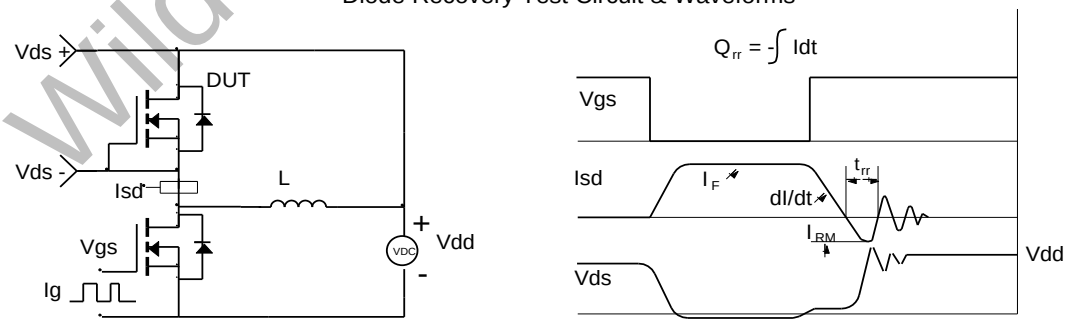
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

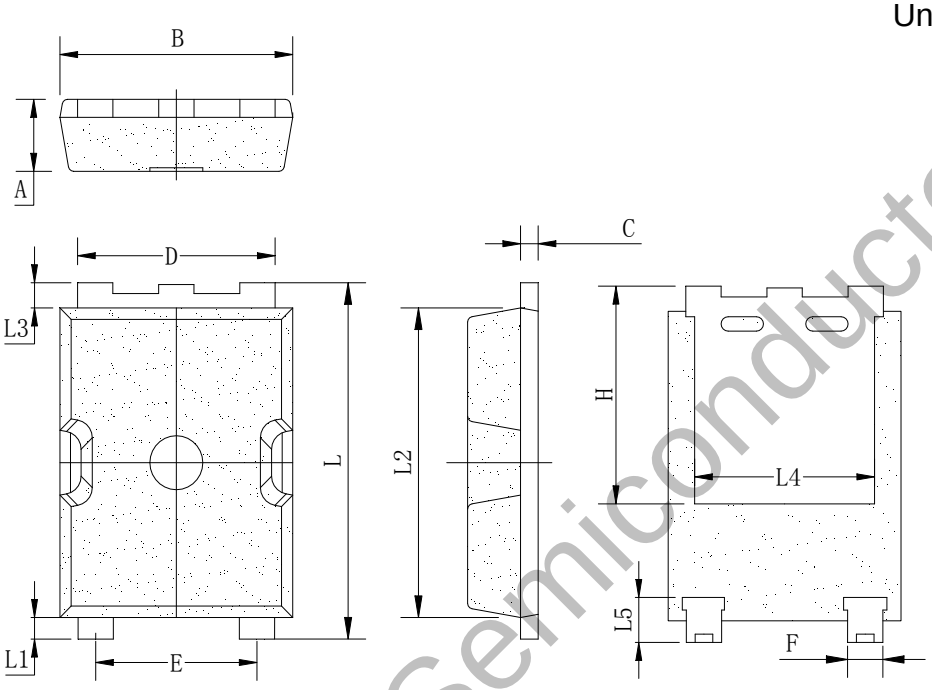


WildGoose Semiconductor

Package Dimension

PTO-252

Unit: mm



Symbol	Min	Typ	Max
A	1.90	2.00	2.10
B	6.50	6.60	6.70
C	0.45	0.50	0.60
D	5.50	5.60	5.70
E	4.50	4.60	4.70
F	0.90	1.00	1.05
H	5.95	6.15	6.25
L	9.80	9.90	10.0
L1	0.50	0.60	0.70
L2	8.50	8.60	8.70
L3	0.60	0.70	0.80
L4	4.65	4.80	4.90
L5	1.05	1.20	1.30

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