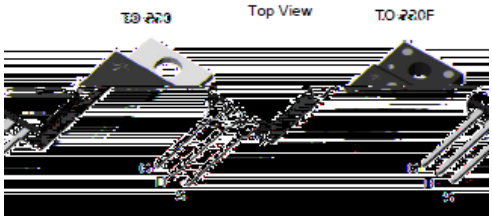
Features

- ƒLow gate charge
- ƒ100% avalanche tested
- ƒImproved dv/dt capability
- ƒRoHS compliant
- ƒHalogen free package
- ƒJEDEC Qualification
- ƒImproved ESD performance



Device	Package	Marking	Remark
TMP8N60AZ / TMPF8N60AZ	TO-220 / TO-220F	TMP8N60AZ / TMPF8N60AZ	RoHS
TMP8N60AZG / TMPF8N60AZG	TO-220 / TO-220F	TMP8N60AZG / TMPF8N60AZG	

Absolute Maximum Ratings

Parameter		Symbol	TMP8N60AZ(G)	TMPF8N60AZ(G)	Unit
Drain-Source Voltage		V_{DSS}	600		V
Gate-Source Voltage		V_{GS}	30		V
Continuous Drain Current	T_C = 25	I_D	7.5	7.5 *	A
	T_C = 100		4.12	4.12 *	A
Pulsed Drain Current (Note 1)		I_{DM}	30	30 *	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	223		mJ
Repetitive Avalanche Current (Note 1)		I_{AR}	7.5		A
Repetitive Avalanche Energy (Note 1)		E_{AR}	12		mJ
Power Dissipation	T_C = 25	P_D	120	39	W
	Derate above 25		0.96	0.31	W/
Peak Diode Recovery dv/dt (Note 3)		dv/dt	4.5		V/ns
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150		
Maximum lead temperature for soldering purposes,		T_L	300		

* Limited only by maximum junction temperature

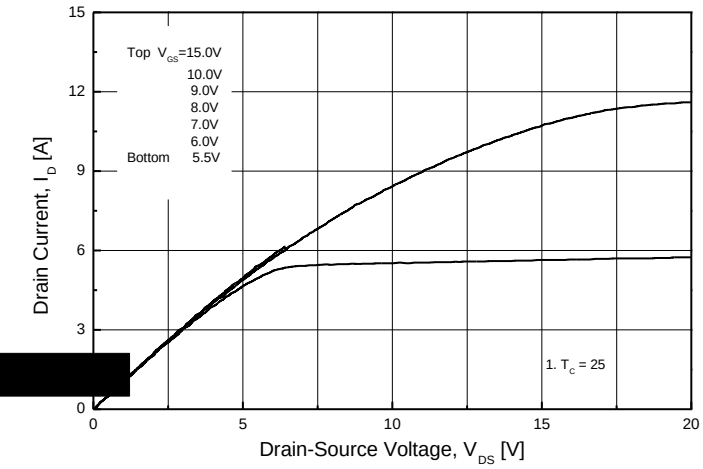
Thermal Characteristics

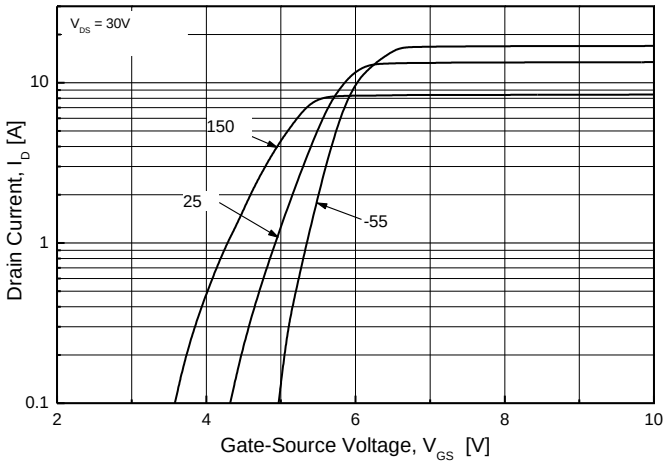
Parameter	Symbol	TMP8N60AZ(G)	TMPF8N60AZ(G)	Unit
Maximum Thermal resistance, Junction-to-Case	$R_{\theta JC}$	1.04	3.2	/W
Maximum Thermal resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	62.5	/W

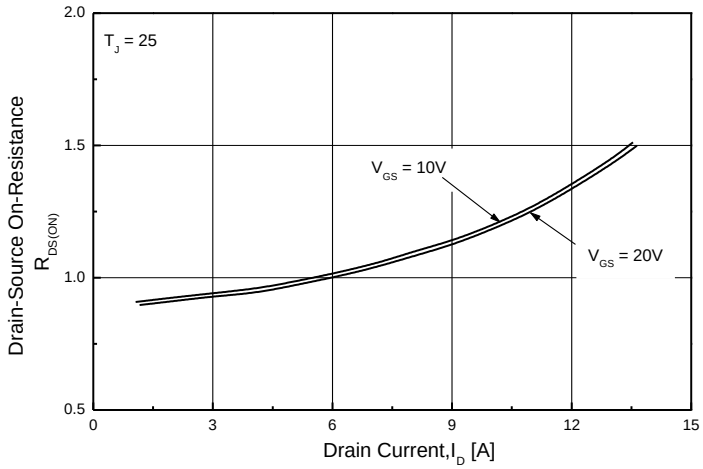
Electrical Characteristics : T_c=25 unless otherwise noted

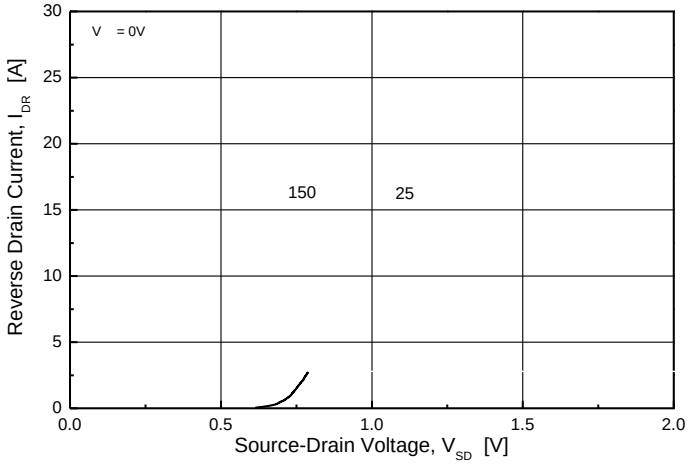
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS} = 0 V, I_D = 250 µA	600	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 600 V, V_{GS} = 0 V	--	--	1	µA
		V_{DS} = 480 V, T_C = 125°C	--	--	10	µA
Forward Gate-Source Leakage Current	I_{GSSF}	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	µA
Reverse Gate-Source Leakage Current	I_{GSSR}	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	µA
ON						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	3	--	5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 3.75 A	--	1.0	1.2	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 3.75 A	--	9	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V,	--	1063	--	pF
Output Capacitance	C_{oss}	f = 1.0 MHz	--	105	--	pF
Reverse Transfer Capacitance	C_{rss}		--	13	--	pF
SWITCHING						
Turn-On Delay Time (Note 4,5)	$t_{d(on)}$	V_{DD} = 300 V, I_D = 7.5 A,	--	27	--	ns
Turn-On Rise Time (Note 4,5)	t_r	R_G = 25				

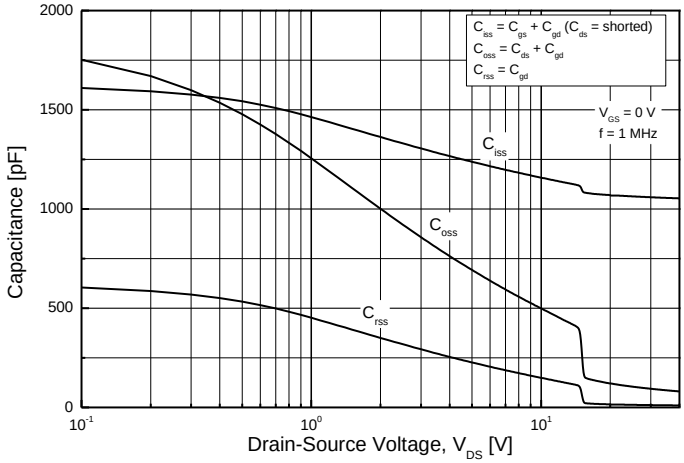
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L=7.29mH, I_{AS} = 7.5A, V_{DD} = 50V, R_G = 25 , Starting T_J= 25
3 I_{SD} 7.5A, di/dt µs , V_{DD} $_{DS}$, Starting T_J= 25
µ
5. Essentially Independent of Operating Temperature Typical Characteristics

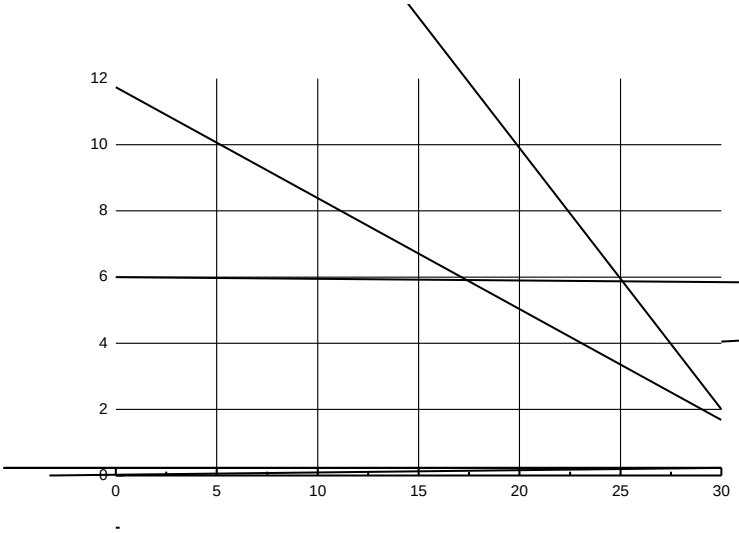

Top V_GS=15.0V
10.0V
9.0V
8.0V
7.0V
6.0V
Bottom 5.5V
1. T_C = 25
Drain Current, I_D [A]
Drain-Source Voltage, V_DS [V]

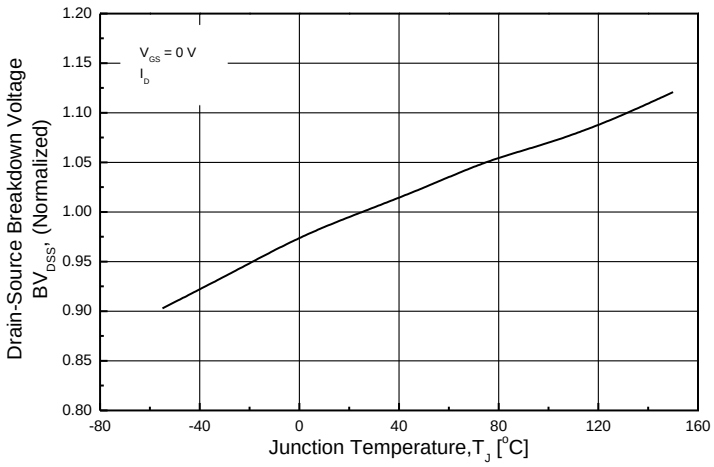

V_DS = 30V
150
25
-55
Drain Current, I_D [A]
Gate-Source Voltage, V_GS [V]

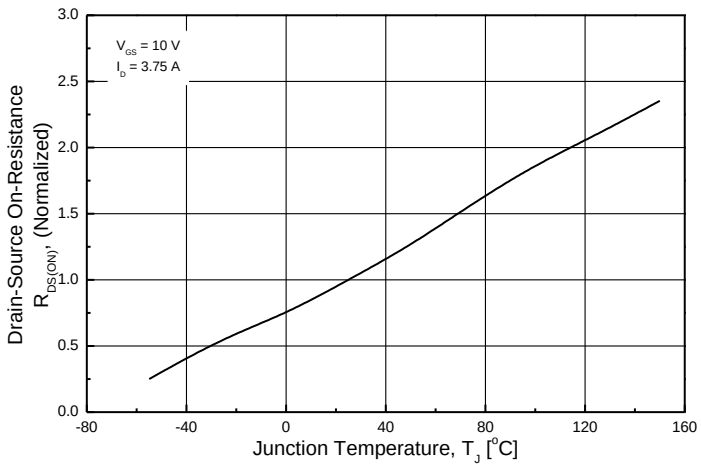

T_J = 25
V_GS = 10V
V_GS = 20V
Drain-Source On-Resistance
R_DS(ON)
Drain Current,I_D [A]

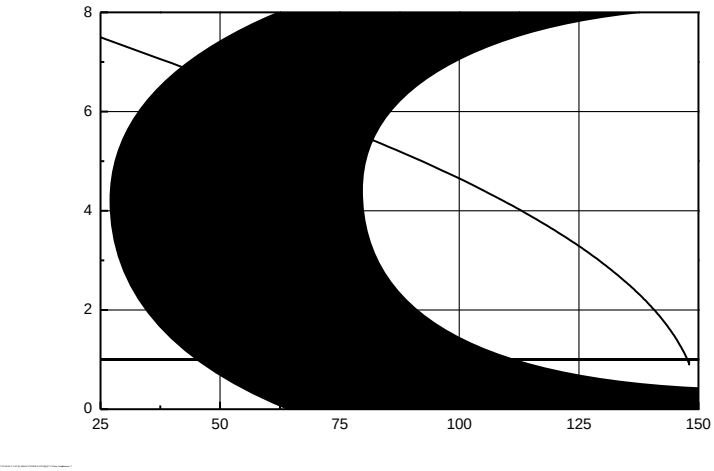

V = 0V
150
25
Reverse Drain Current, I_DR [A]
Source-Drain Voltage, V_SD [V]

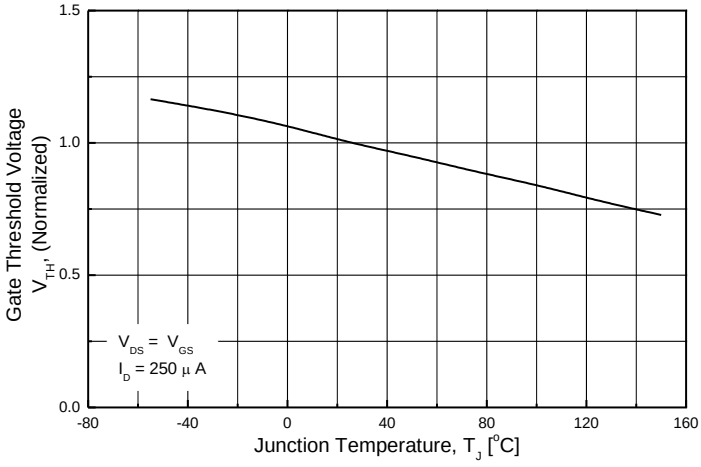

C_iss = C_gs + C_gd (C_ds = shorted)
C_oss = C_ds + C_gd
C_rss = C_gd
V_GS = 0 V
f = 1 MHz
C_iss
C_oss
C_rss
Capacitance [pF]
Drain-Source Voltage, V_DS [V]



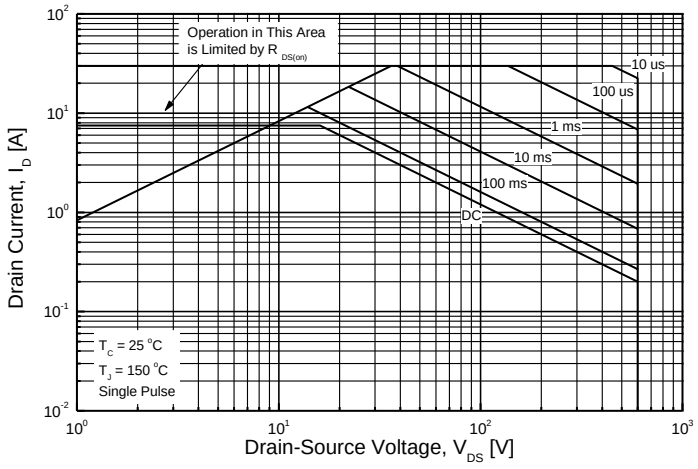








TMP8N60AZ(G)



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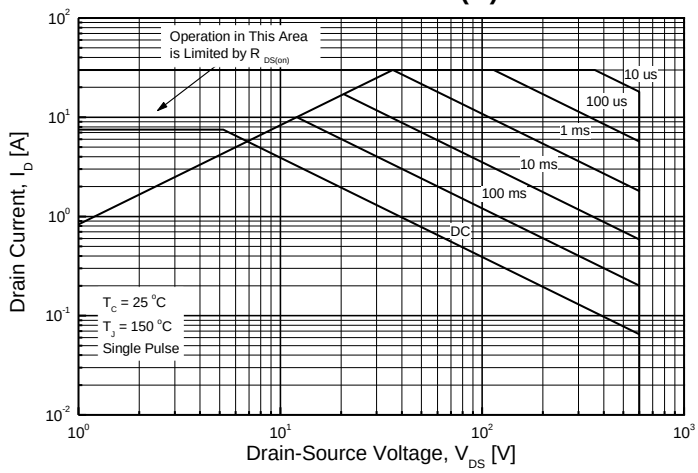

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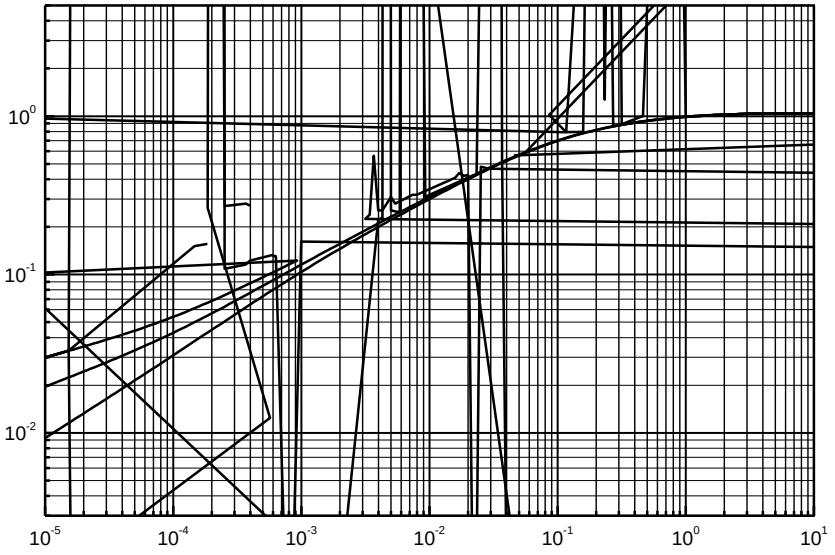

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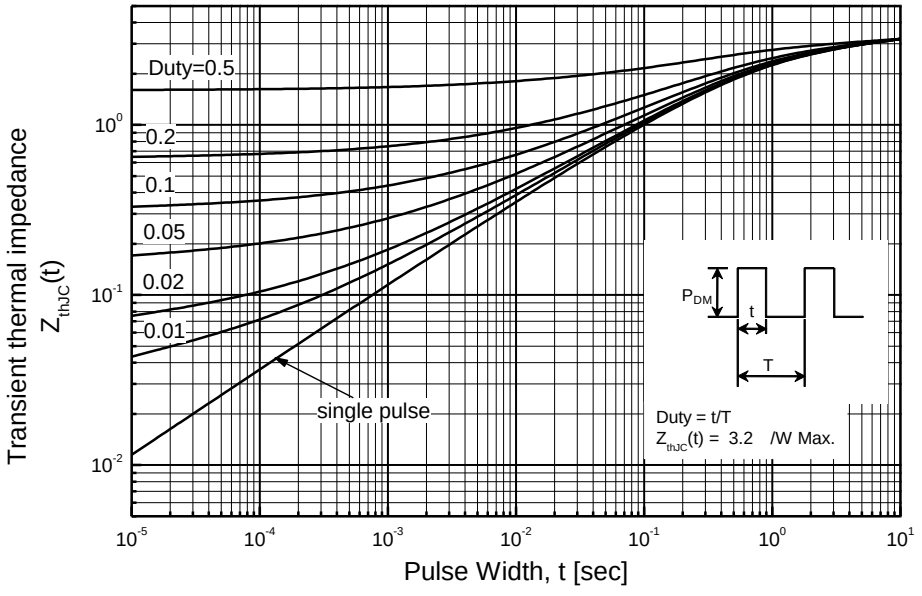
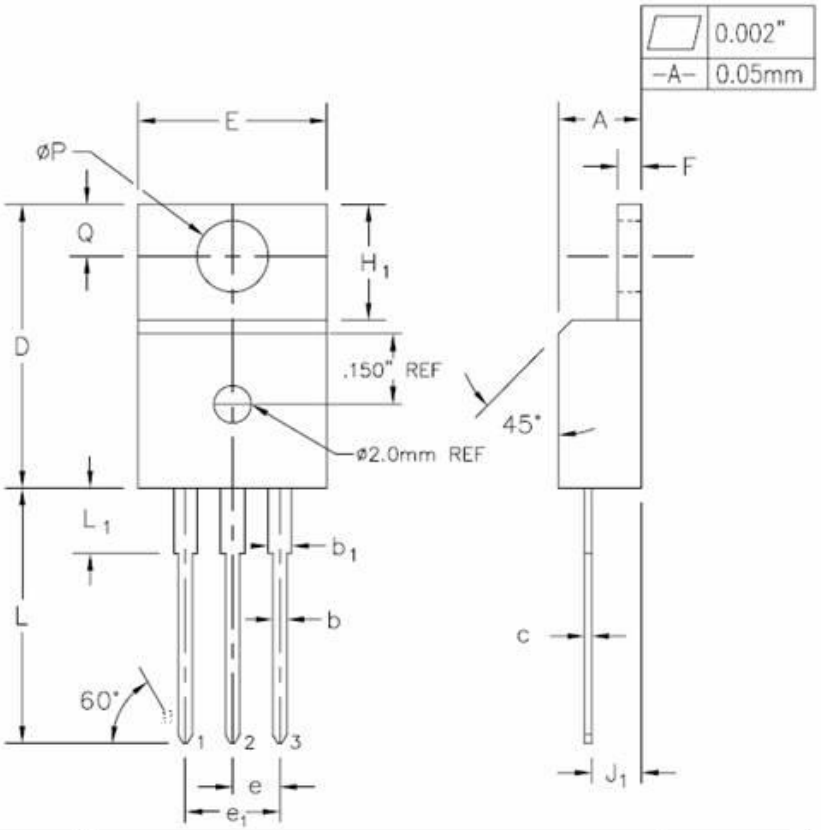


TO-220AB-3L MECHANICAL DATA



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.170	0.180	4.32	4.57	
b	0.028	0.036	0.71	0.91	
b_1	0.045	0.055	1.15	1.39	
c	0.014	0.021	0.36	0.53	
D	0.590	0.610	14.99	15.49	

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.178	0.194	4.53	4.93	
b	0.028	0.036	0.71	0.91	
C	0.018	0.024	0.45	0.60	
D	0.617	0.633	15.67	16.07	
E	0.392	0.408	9.96	10.36	
e	0.100 TYP.		2.54TYP.		
H1	0.256	0.272	6.50	6.90	
J1	0.101	0.117	2.56	2.96	
L	0.503	0.519	12.78	13.18	
	0.117	0.133	2.98	3.38	
b1	0.045	0.055	1.15	1.39	
L1	0.114	0.130	2.9	3.3	
Q1	0.122	0.138	3.10	3.50	
F	0.092	0.108	2.34	2.74	