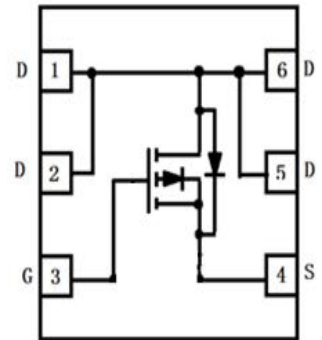
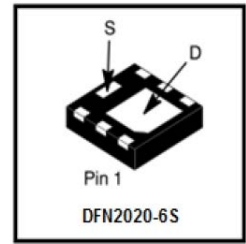


P1216D

15V P-Channel Enhancement MOSFET

1. FEATURES

- Low Profile DFN 2.0x2.0x0.62 mm for Board Space Saving
- Ultra Low RDS(on)
- ESD Diode Protected Gate
- This is a Pb-Free Device
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



2. APPLICATIONS

- Battery Switch
- High Side Load Switch

3. ORDERING INFORMATION

Device	Marking	Shipping
P1216D	P12	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain-to-Source Voltage	VDSS	-15	V
Gate-to-Source Voltage	VGS	±12	V
Drain Current (Note 1)	ID	-10	A
Pulsed Drain Current (tp = 10 μs)	IDM	-40	A
Power Dissipation (Note 1)	PD	1.7	W
Operating Junction and Storage Temperature Range	TJ , TSTG	-55 ~ +150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Junction-to-Ambient(Note 1)	RθJA	74	°C/W

1. Surface mounted on "1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.



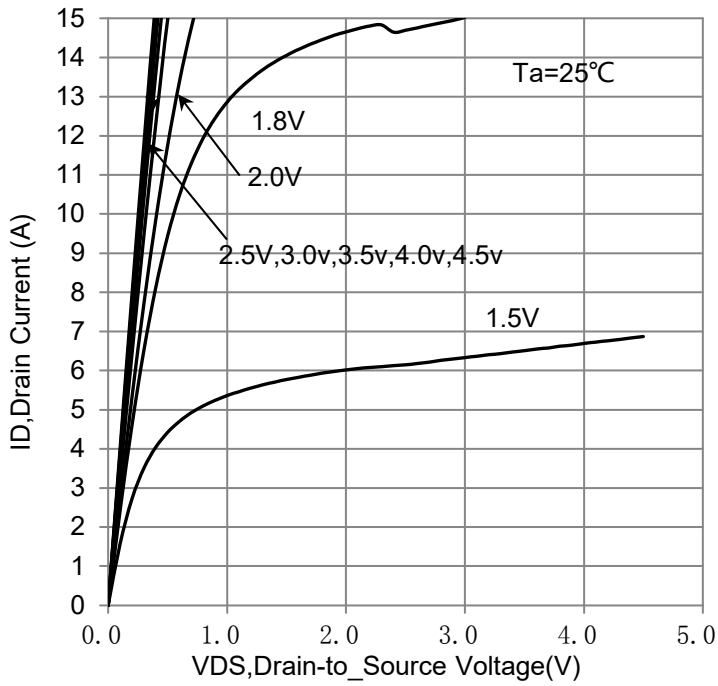
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain-Source Breakdown Voltage (VGS = 0 V, ID = -250 μA)	V(BR)DSS	-15	-	-	V
Zero Gate Voltage Drain Current (VDS = -12 V, VGS = 0 V, TJ = 25°C)	IDSS	-	-	-1	μA
Gate-to-Source Leakage Current (VDS = 0V, VGS = ±12V)	IGSS	-	-	±10	μA
Gate Threshold Voltage(Note 2) (VDS = VGS, ID = -250μA)	VGS(th)	-	-	-1	V
Drain-Source On-Resistance(Note 2) (VGS = -4.5 V, ID = -7 A) (VGS = -2.5 V, ID = -5 A) (VGS = -1.8 V, ID = -2 A)	RDS(ON)	-	16 19 35	19 24 48	mΩ
Dynamic					
Input Capacitance	(VDS = -15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	2132	-
Output Capacitance		Coss	-	383	-
Reverse Transfer Capacitance		Crss	-	343	-
Total Gate Charge	(VDS = -15 V, VGS = -4.5 V, ID = -4 A)	Qg(TOT)	-	25.7	-
Threshold Gate Charge		Qg(th)	-	1.48	-
Gate-Source Charge		Qgs	-	2.68	-
Gate-Drain Charge		Qgd	-	10.56	-
Turn-On Delay Time	(VGS = -4.5 V, VDD = -15 V, ID = -4A, RG = 1Ω)	td(on)	-	11	-
Rise Time		tr	-	19	-
Turn-Off Delay Time		td(off)	-	160	-
Fall Time		tf	-	92	-
Diode Forward Voltage (IS = -1 A, VGS = 0 V, TJ = 25°C) (IS = -1 A, VGS = 0 V, TJ = 125°C)	VSD	-	- -0.5	-1.5 -	V

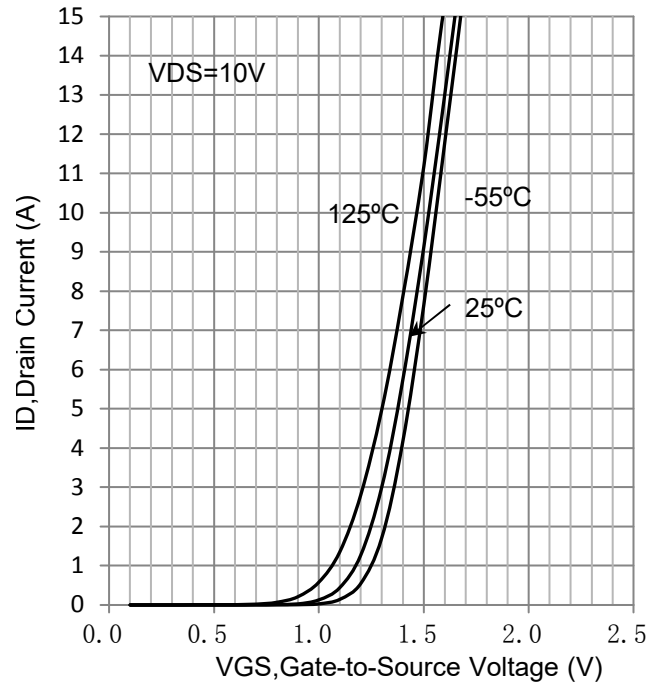
2.Pulse test: PW ≤ 300us duty cycle ≤ 2%.



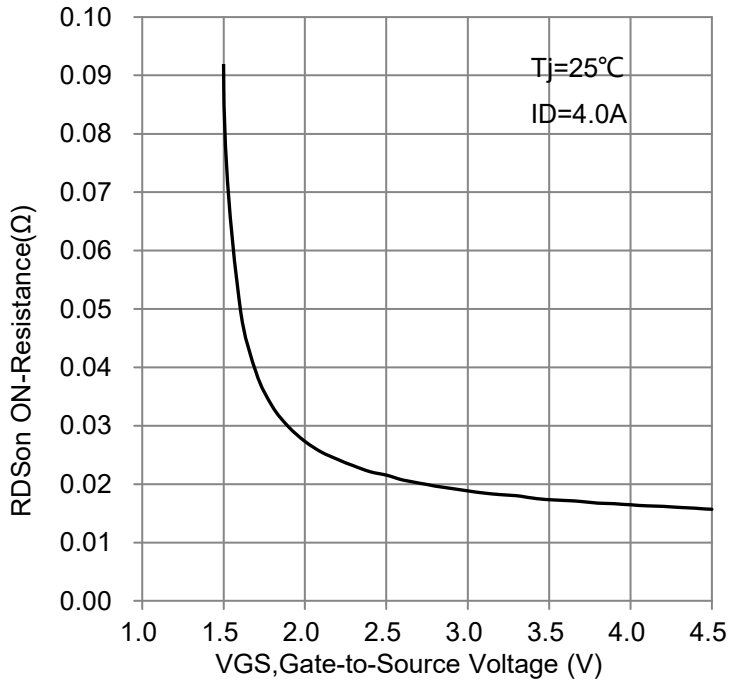
6.ELECTRICAL CHARACTERISTICS CURVES



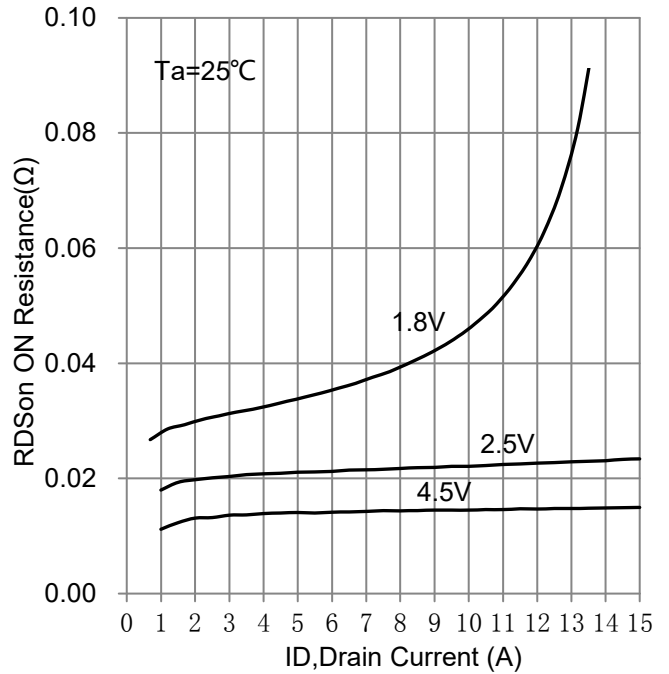
On-Region Characteristics



Transfer Characteristics

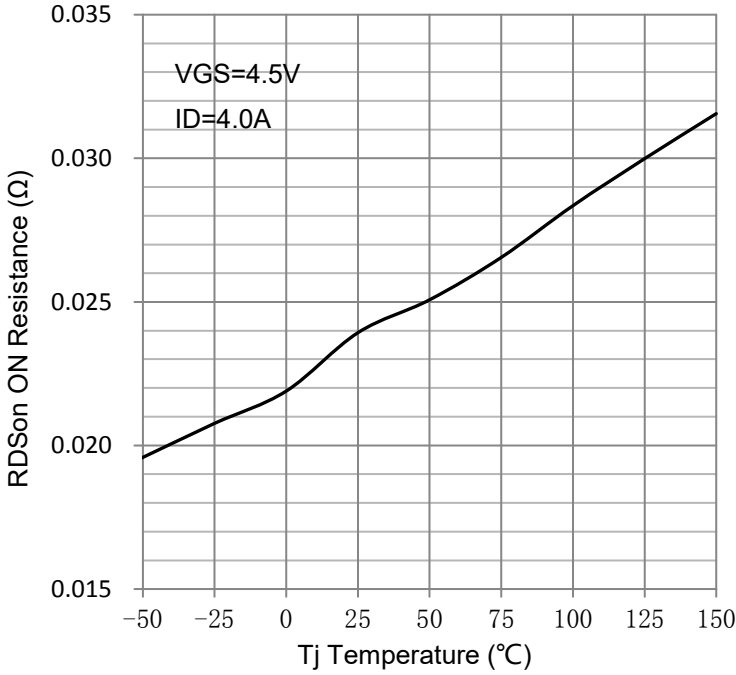
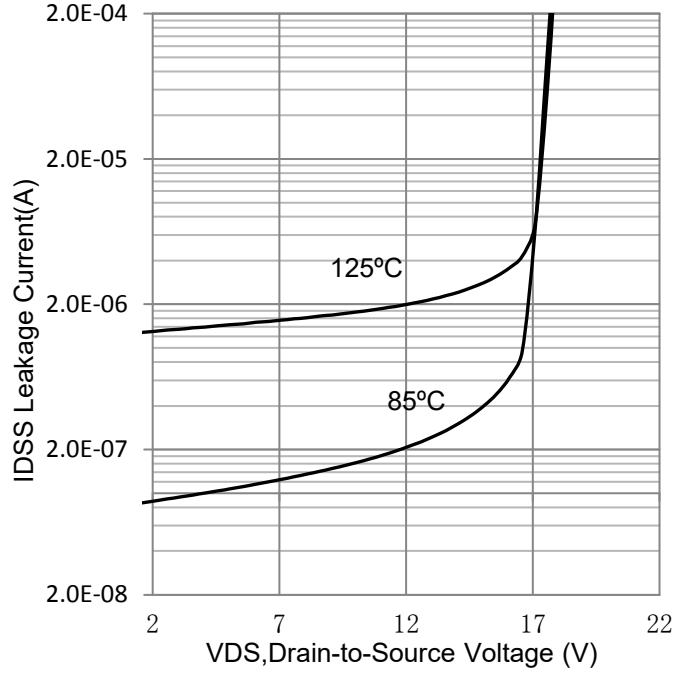
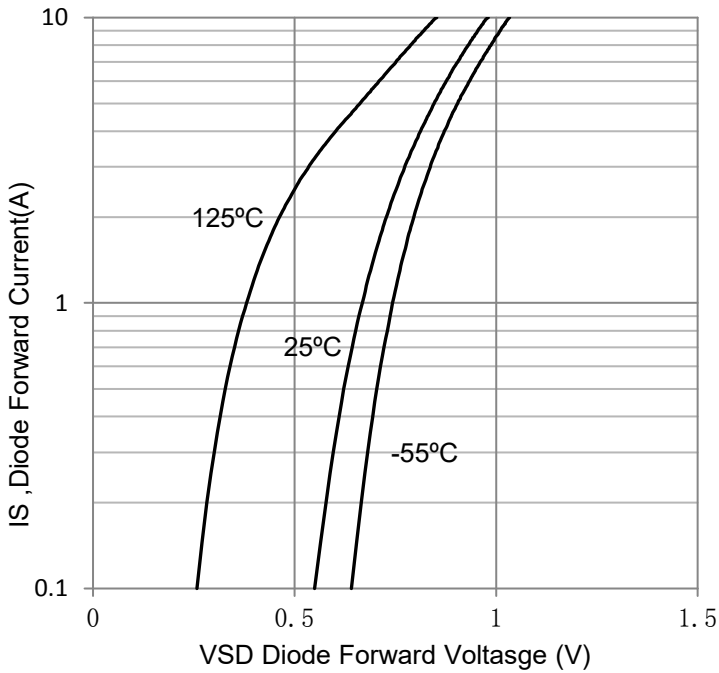
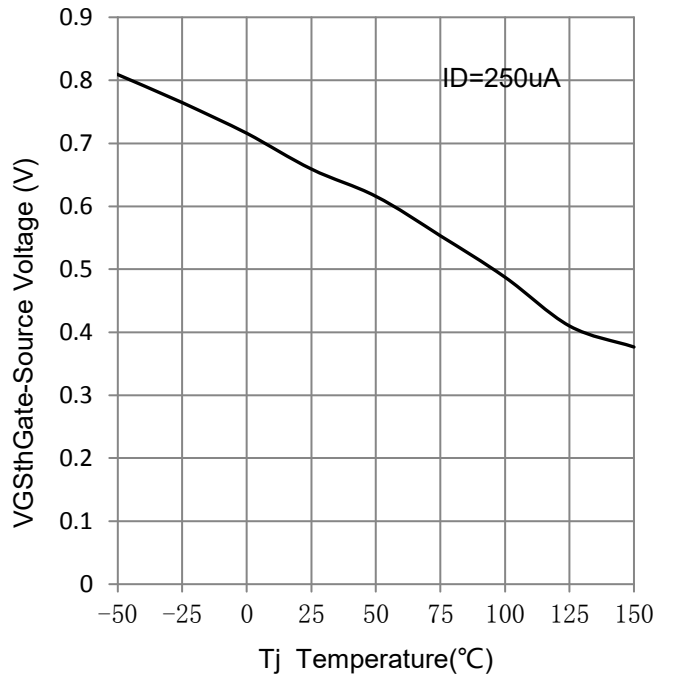


On-Resistance vs. Gate-to-Source Voltage

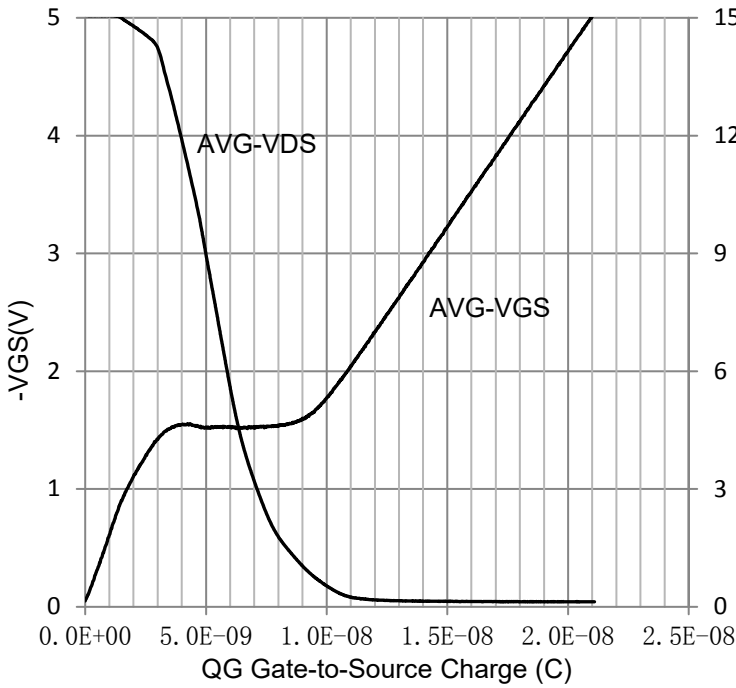


On-Resistance vs. Drain Current and Gate Voltage

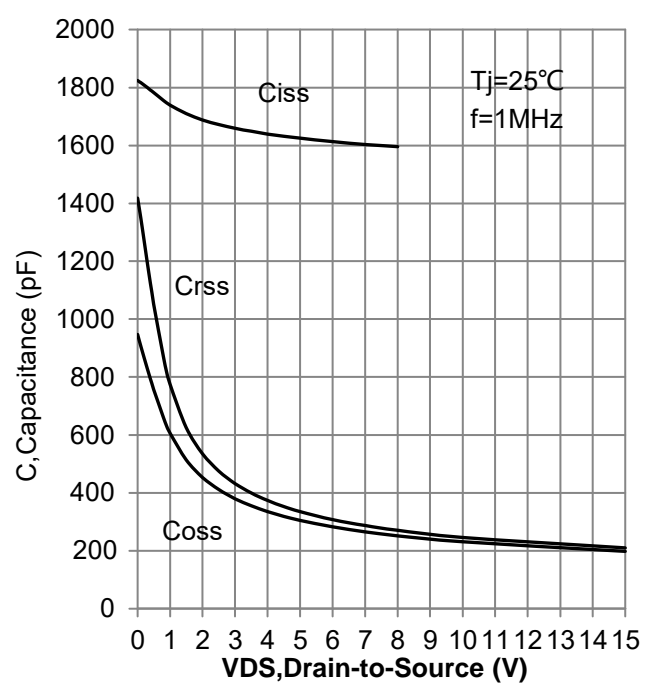


6.ELECTRICAL CHARACTERISTICS CURVES (Con.)

On-Resistance Variation with Temperature

Drain-to-Source Leakage Current vs. Voltage

Diode Forward Voltage vs. Current

Threshold Voltage

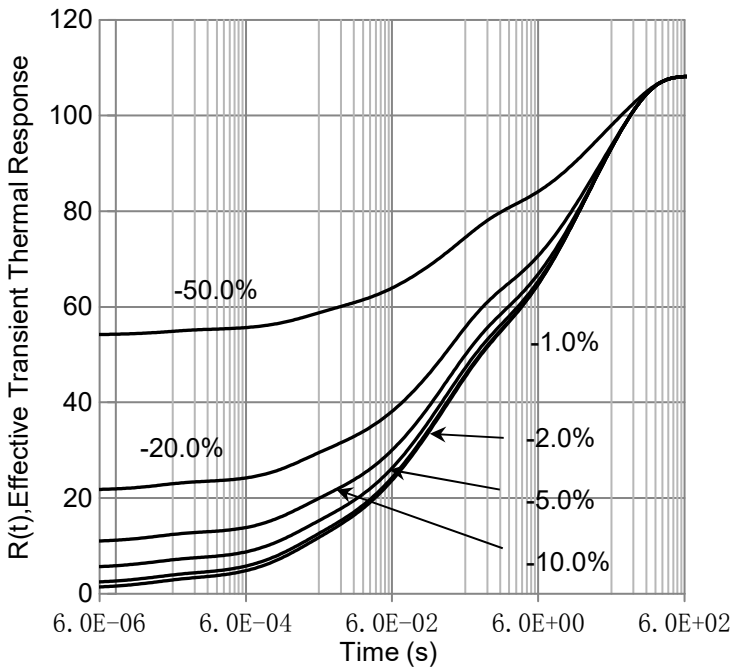

6.ELECTRICAL CHARACTERISTICS CURVES (Con.)



Gate-to-Source and Drain-to-Source Voltage vs. Total Charge

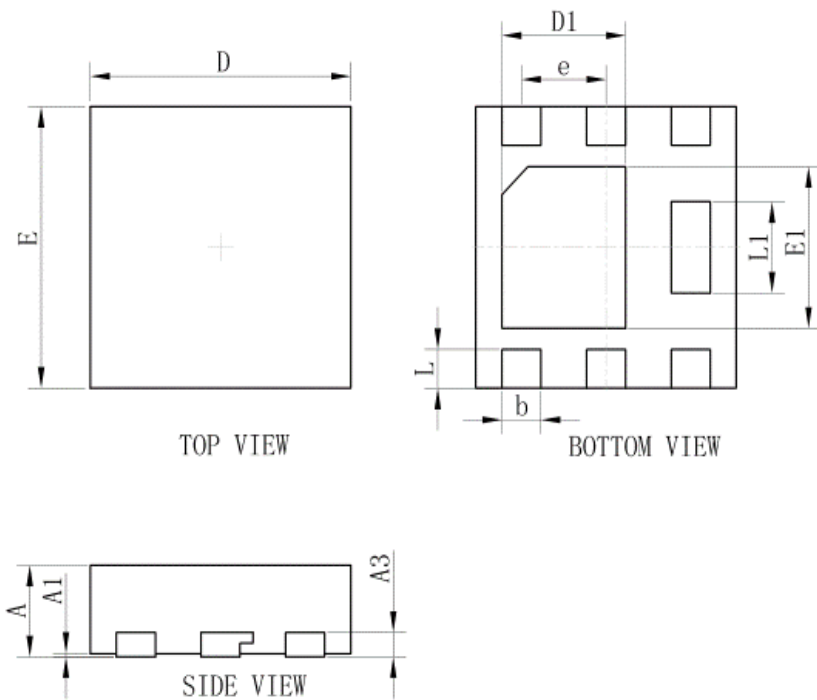


Capacitance variation

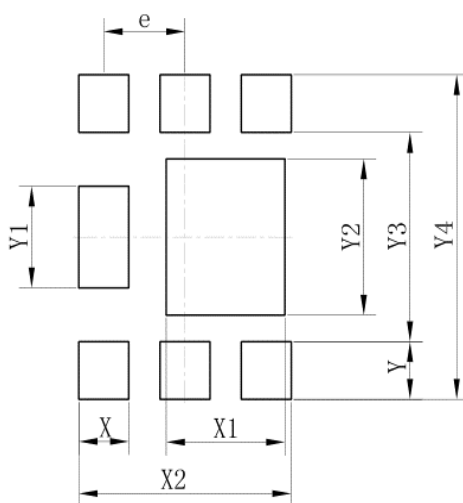


FET Thermal Response



7.OUTLINE AND DIMENSIONS


DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	0.65TYP.		
L	0.23	0.28	0.33
L1	0.60	0.65	0.65
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

8.SOLDERING FOOTPRINT


DFN2020-6S	
Dim	(mm)
X	0.40
X1	0.95
X2	1.70
e	0.65
Y	0.43
Y1	0.75
Y2	1.15
Y3	1.54
Y4	2.39

