

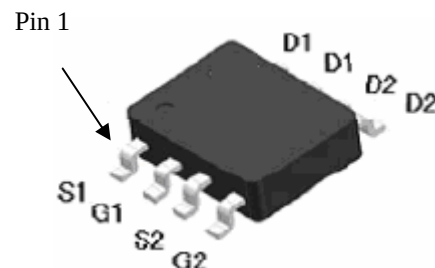
Dual N-Channel Enhancement Mode Power MOSFET

SOP-8

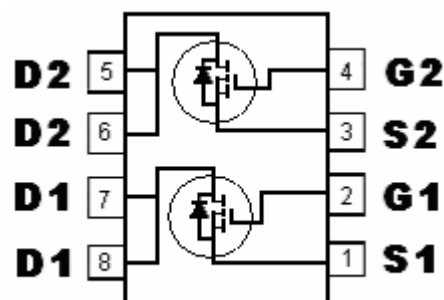
Features:

- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Dual N-ch MOSFET package
- Pb-free lead plating & Halogen-free package

BVDSS	40V
Id	12A
RdSON@VGS=10V, Id=8A	20mΩ (typ)
RdSON@VGS=4.5V, Id=5A	26mΩ (typ)



KWB25A04Q8



G : Gate S : Source D : Drain

Ordering Information

Device	Package	Shipping
KWB25A04Q8-0-T3-G	SOP-8 (Pb-free lead plating and halogen-free package)	2500 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ V _{GS} =10V, T _C =25°C	I _D	12	A
Continuous Drain Current @ V _{GS} =10V, T _C =100°C		8.5	
Continuous Drain Current @ V _{GS} =10V, T _A =25°C		8 (Note 2)	
Continuous Drain Current @ V _{GS} =10V, T _A =70°C		6.7 (Note 2)	
Pulsed Drain Current	I _{DM}	32 (Note 1)	
Power Dissipation for Dual Operation	P _D	3	W
Power Dissipation for Single Operation		2.4 (Note 2)	
		1.2 (Note 3)	
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{th,j-c}	25	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{th,j-a}	62.5 (Note 2)	
		125 (Note 3)	

- Note : 1. Pulse width limited by maximum junction temperature
2. Surface mounted on 1 in² copper pad of FR-4 board, pulse width≤10s.
3. Surface mounted on minimum copper pad, pulse width≤10s.

Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	40	-	-	V	V _{GS} =0, I _D =250μA
V _{GS(th)}	1.0	1.4	2.5	V	V _{DS} =V _{GS} , I _D =250μA
G _{FS} *1	-	10	-	S	V _{DS} =5V, I _D =8A
I _{GSS}	-	-	±100	nA	V _{GS} =±20, V _{DS} =0
I _{DSS}	-	-	1	μA	V _{DS} =32V, V _{GS} =0
	-	-	25	μA	V _{DS} =32V, V _{GS} =0, T _j =125°C
R _{DS(ON)} *1	-	20	25	mΩ	V _{GS} =10V, I _D =8A
	-	26	35	mΩ	V _{GS} =4.5V, I _D =5A
Dynamic					
Q _g *1, 2	-	9	-	nC	V _{DS} =20V, I _D =8A, V _{GS} =10V
Q _{gs} *1, 2	-	1.8	-		
Q _{gd} *1, 2	-	2.5	-		
t _{d(ON)} *1, 2	-	7	-	ns	V _{DS} =20V, I _D =1A, V _{GS} =10V, R _G =6Ω
t _r *1, 2	-	5	-		
t _{d(OFF)} *1, 2	-	21	-		
t _f *1, 2	-	8	-		

Ciss	-	640	-	pF	VGS=0V, VDS=20V, f=1MHz
Coss	-	51	-		
Crss	-	45	-		
Source-Drain Diode					
IS *1	-	-	8	A	
ISM *3	-	-	24		
VSD *1	-	0.73	1.2	V	IS=1A, VGS=0V

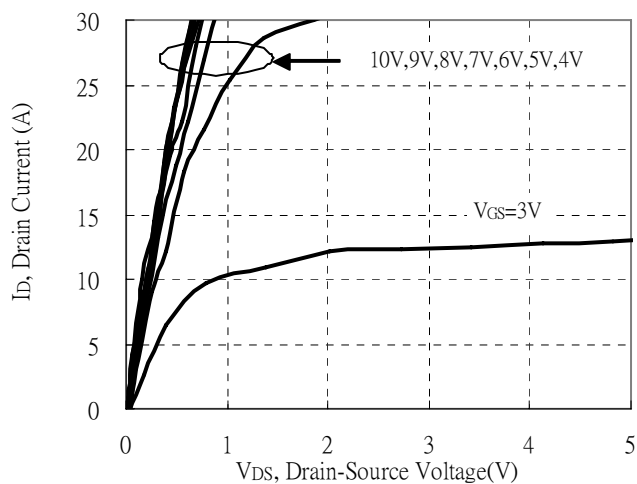
Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

*2.Independent of operating temperature

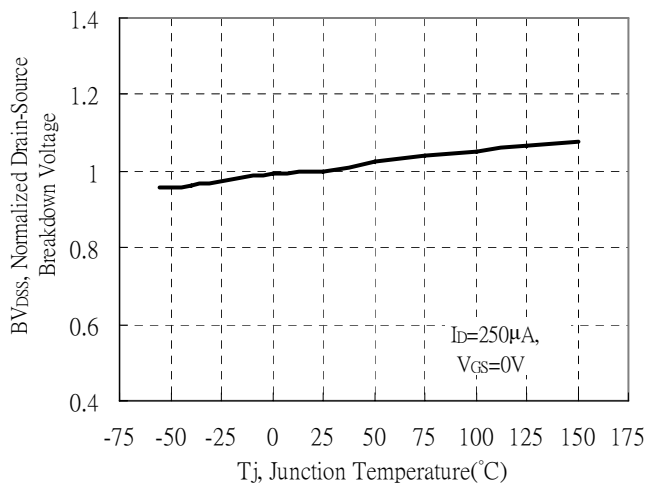
*3.Pulse width limited by maximum junction temperature.

Typical Characteristics

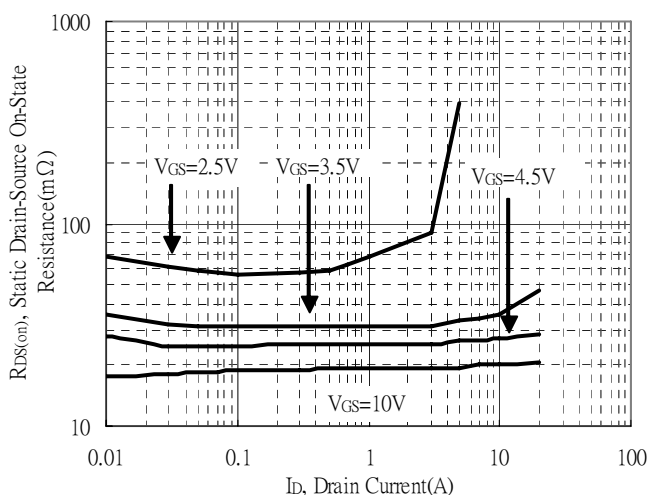
Typical Output Characteristics



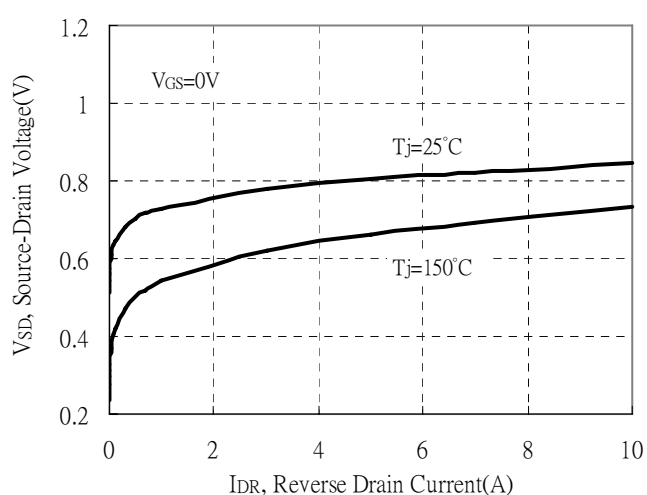
Breakdown Voltage vs Ambient Temperature



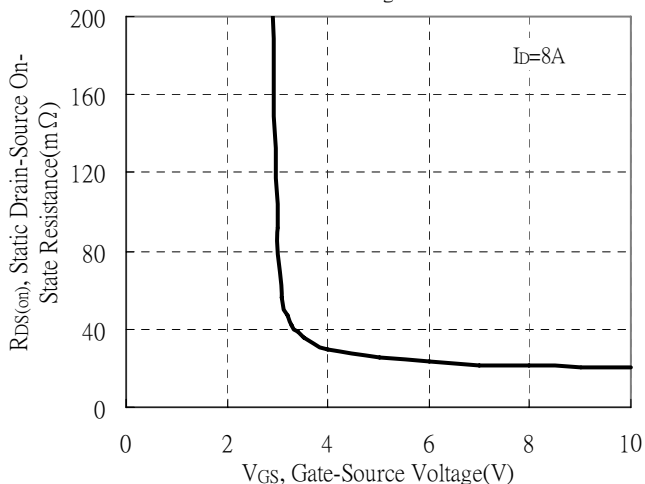
Static Drain-Source On-State resistance vs Drain Current



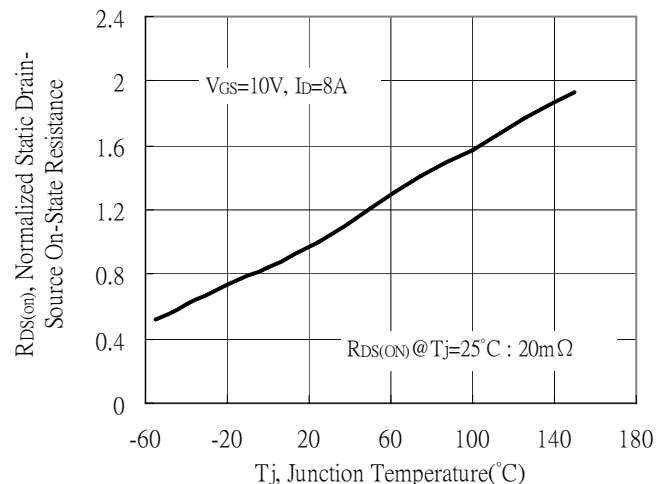
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

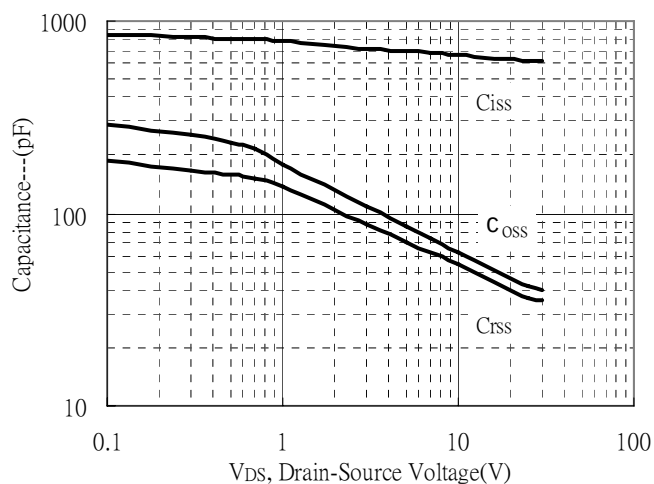


Drain-Source On-State Resistance vs Junction Temperature

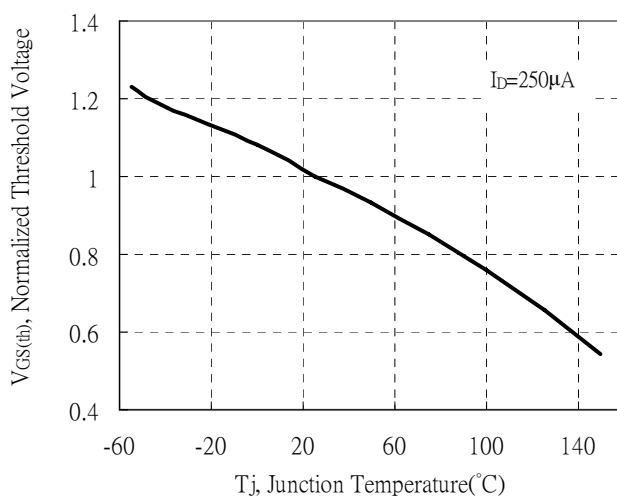


Typical Characteristics(Cont.)

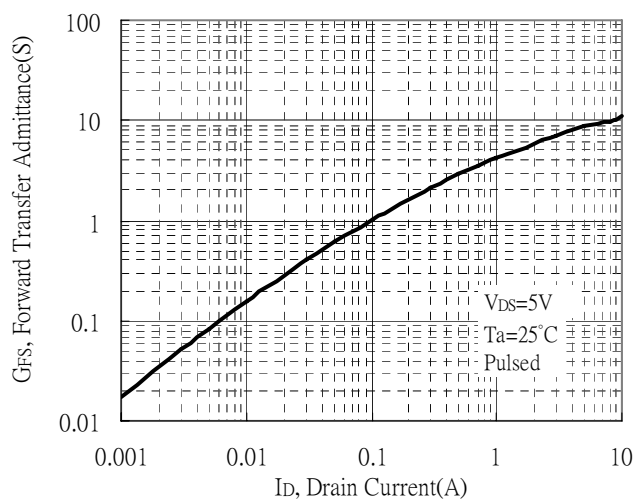
Capacitance vs Drain-to-Source Voltage



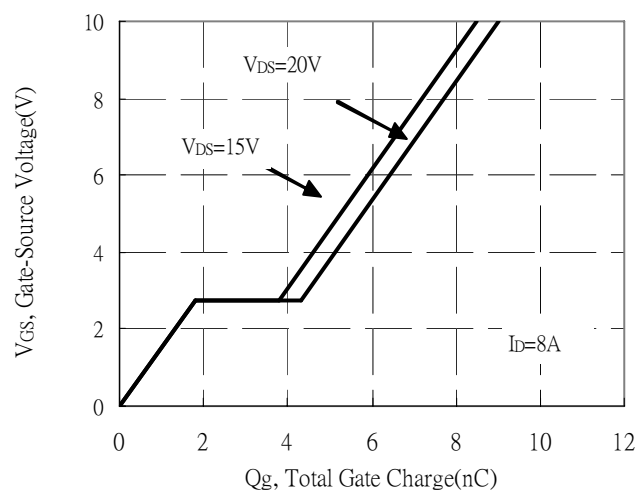
Threshold Voltage vs Junction Temperature



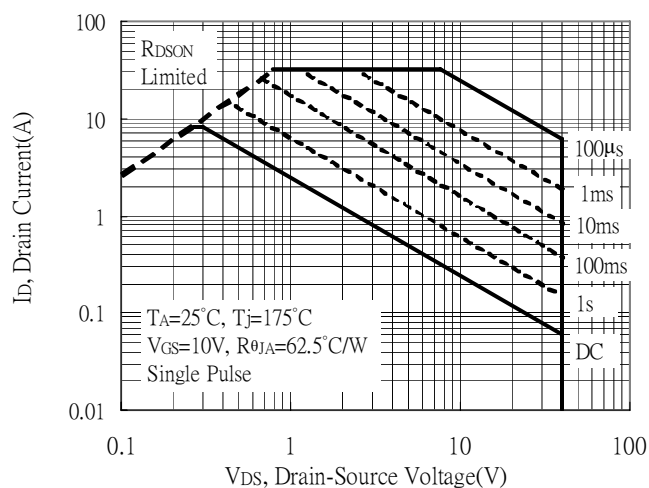
Forward Transfer Admittance vs Drain Current



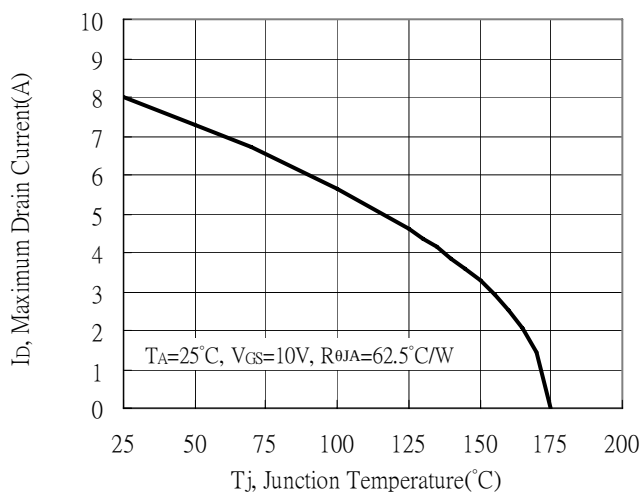
Gate Charge Characteristics



Maximum Safe Operating Area

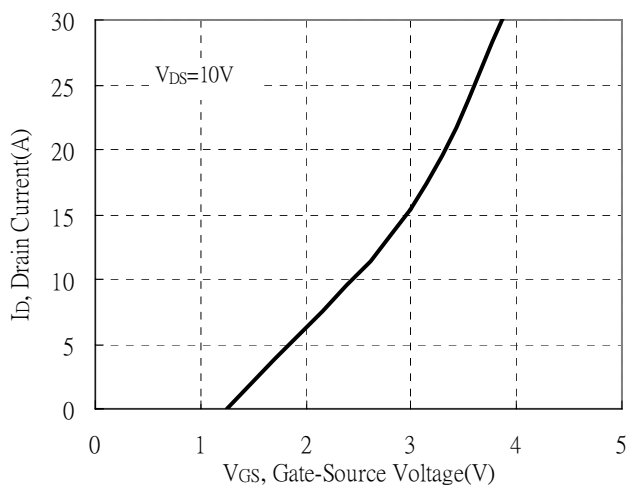


Maximum Drain Current vs Junction Temperature

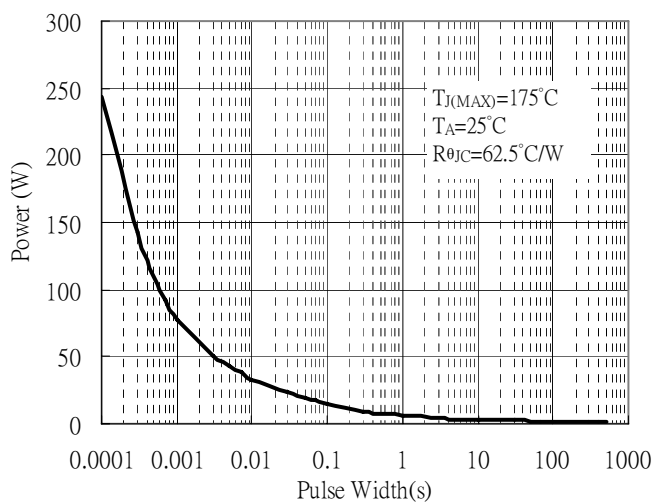


Typical Characteristics(Cont.)

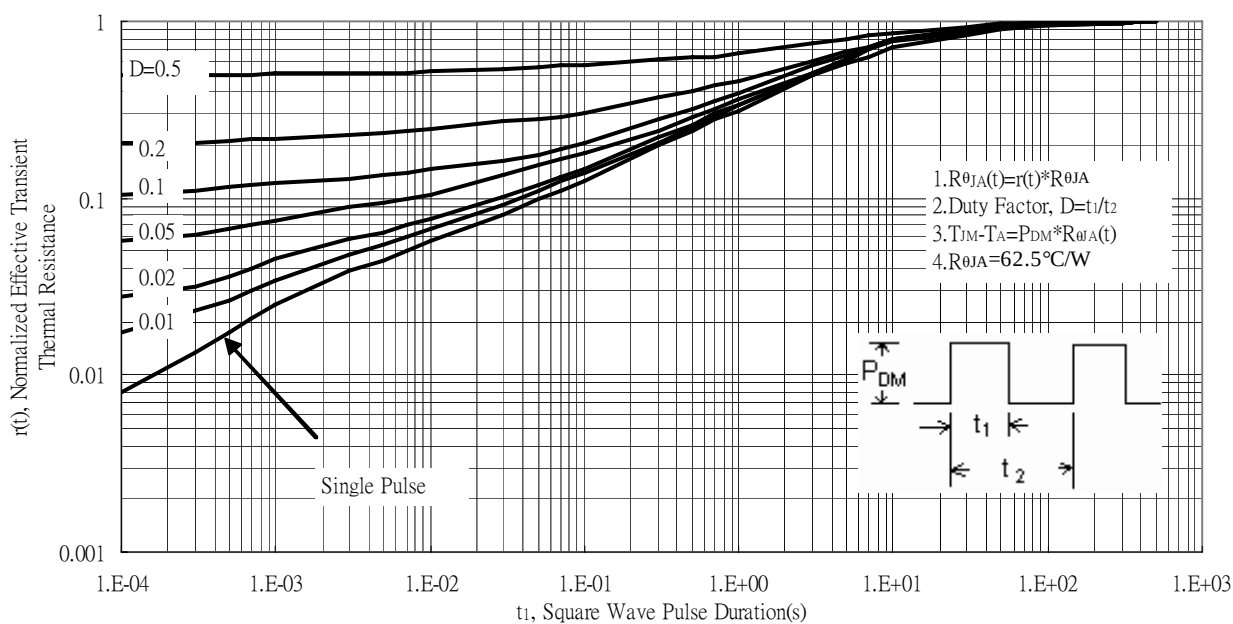
Typical Transfer Characteristics



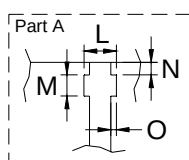
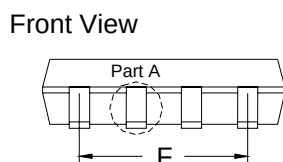
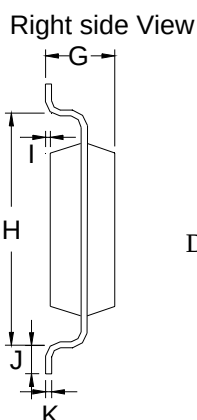
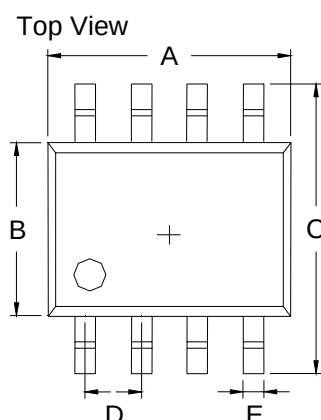
Single Pulse Maximum Power Dissipation



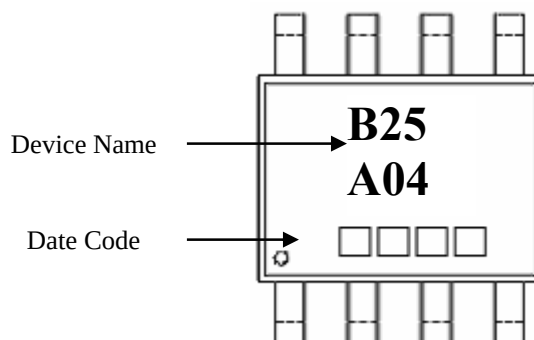
Transient Thermal Response Curves



SOP-8 Dimension



Marking:



8-Lead SOP-8 Plastic Package
 Code: Q8

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1850	0.2007	4.70	5.10	I	0.0031	0.0110	0.08	0.28
B	0.1457	0.1614	3.70	4.10	J	0.0157	0.0323	0.40	0.83
C	0.2283	0.2441	5.80	6.20	K	0.0074	0.0102	0.19	0.26
D	0.0500*		1.27*		L	0.0145	0.0204	0.37	0.52
E	0.0130	0.0201	0.33	0.51	M	0.0118	0.0197	0.30	0.50
F	0.1472	0.1527	3.74	3.88	N	0.0031	0.0051	0.08	0.13
G	0.0472	0.0638	1.20	1.62	O	0.0000	0.0059	0.00	0.15
H	0.1889	0.2007	4.80	5.10					