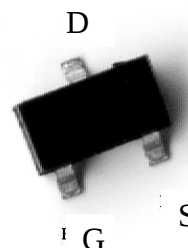


-20V P-CHANNEL Enhancement Mode MOSFET

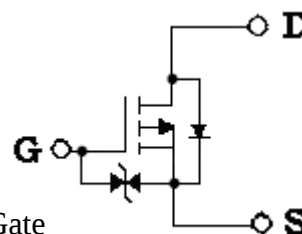
Features:

- Very low level gate drive requirements allowing direct operation in 3V circuits. $V_{GS(th)} < 1.2V$.
- Compact industrial standard SOT-523 surface mount package.
- ESD protected gate
- Pb-free lead plating and halogen-free package.

SOT-523



KWP1013C3



G : Gate
S : Source
D : Drain

BV_{DSS}	-20V
$I_D @ T_A=25^{\circ}C, V_{GS}=-4.5V$	-500mA
$R_{DS(on)} @ V_{GS}=-4.5V, I_D=-500mA$	0.63Ω (typ)
$R_{DS(on)} @ V_{GS}=-2.5V, I_D=-300mA$	1.1Ω (typ)
$R_{DS(on)} @ V_{GS}=-1.8V, I_D=-150mA$	1.7Ω (typ)

Ordering Information

Device	Package	Shipping
KWP1013C3	SOT-523 (Pb-free lead plating package)	3000 pcs / tape & reel

Absolute Maximum Ratings (Tj=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current @ T _A =25°C, V _{GS} =-4.5V	I _D	-0.5	A
Continuous Drain Current @ T _A =70°C, V _{GS} =-4.5V		-0.4	
Pulsed Drain Current *1	I _{DM}	-2	
Maximum Power Dissipation @ T _A =25°C	P _D	280 *2	mW
Thermal Resistance, Junction-to-Ambient	R _{th,ja}	450 *2	°C/W
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Note : 1. Pulse width ≤ 10μs, duty cycle ≤ 2%.

2. When mounted on FR-4 board with 1 sq inch pad size.

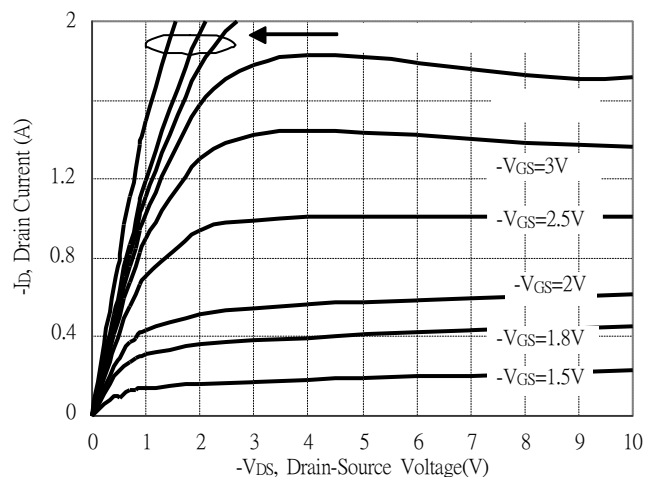
Electrical Characteristics (Tj=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-20	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-0.5	-0.8	-1.2		V _{DS} =V _{GS} , I _D =-250μA
G _{FS}	-	0.7	-	S	V _{DS} =-10V, I _D =-250mA
I _{GSS}	-	-	±2	μA	V _{GS} =±8V, V _{DS} =0V
I _{DSS}	-	-	-1		V _{DS} =-20V, V _{GS} =0V
	-	-	-10		V _{DS} =-20V, V _{GS} =0V, T _j =55°C
*R _{DS(ON)}	-	0.63	0.9	Ω	V _{GS} =-4.5V, I _D =-500mA
	-	1.1	1.4		V _{GS} =-2.5V, I _D =-300mA
	-	1.7	2.7		V _{GS} =-1.8V, I _D =-150mA
Dynamic					
C _{iss}	-	59	-	pF	V _{DS} =-10V, V _{GS} =0V, f=1MHz
C _{oss}	-	21	-		
C _{rss}	-	15	-		
*t _{d(ON)}	-	5	-	ns	V _{DS} =-10V, I _D =-200mA, V _{GS} =-4.5V, R _G =10Ω
*t _r	-	6	-		
*t _{d(OFF)}	-	42	-		
*t _f	-	14	-		
*Q _g	-	1.5	-	nC	V _{DS} =-10V, I _D =-250mA, V _{GS} =-4.5V
*Q _{gs}	-	0.28	-		
*Q _{gd}	-	0.44	-		
Source-Drain Diode					
*I _S	-	-	-0.5	A	
*I _{SM}	-	-	-2		
*V _{SD}	-	-0.88	-1.2	V	V _{GS} =0V, I _S =-150mA

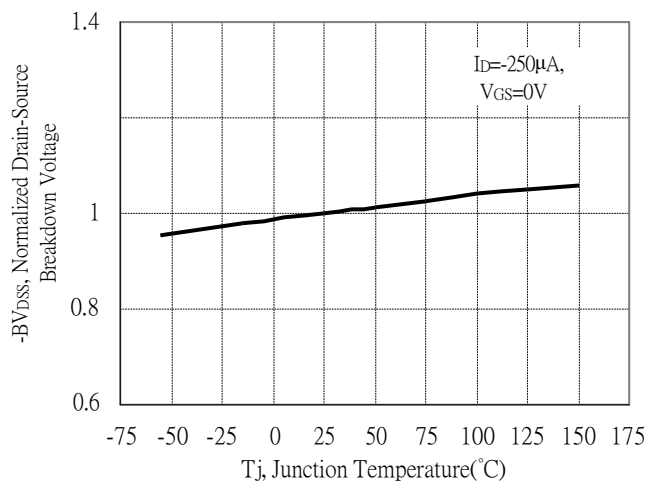
*Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Typical Characteristics

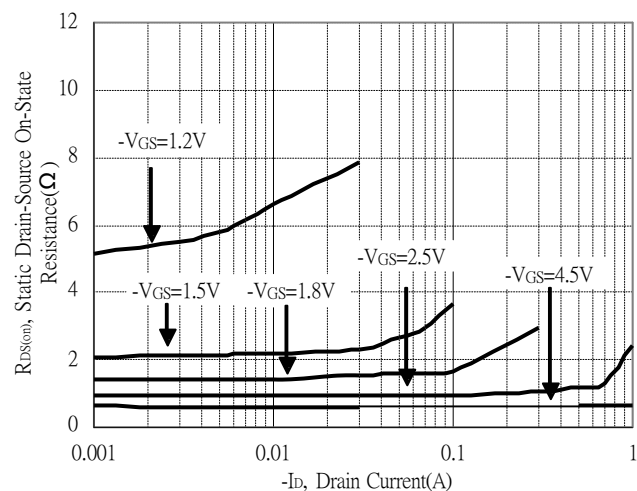
Typical Output Characteristics



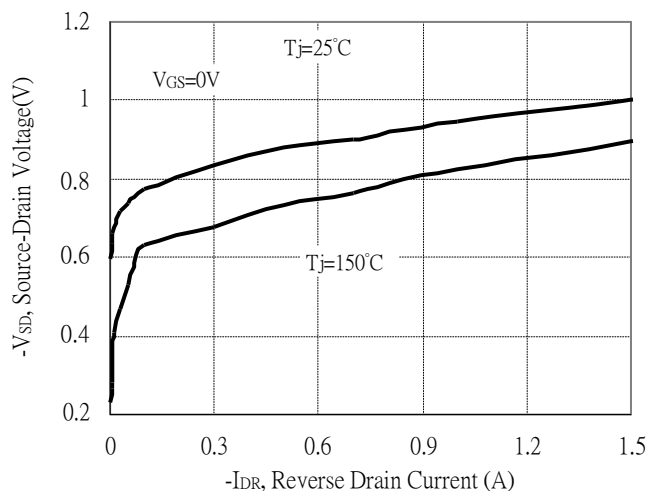
Breakdown Voltage vs Ambient Temperature



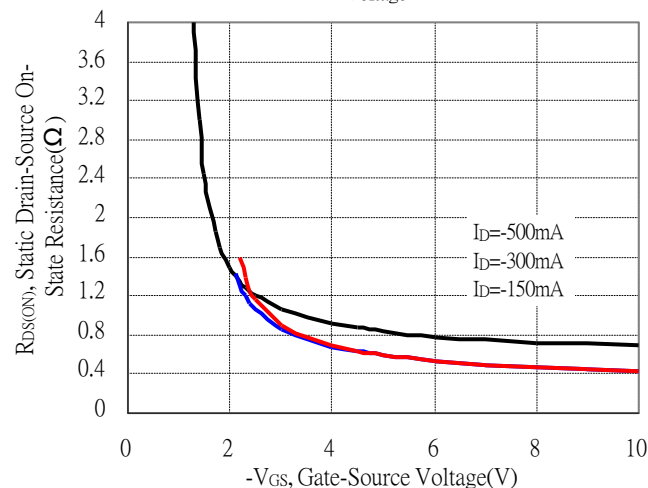
Static Drain-Source On-State resistance vs Drain Current



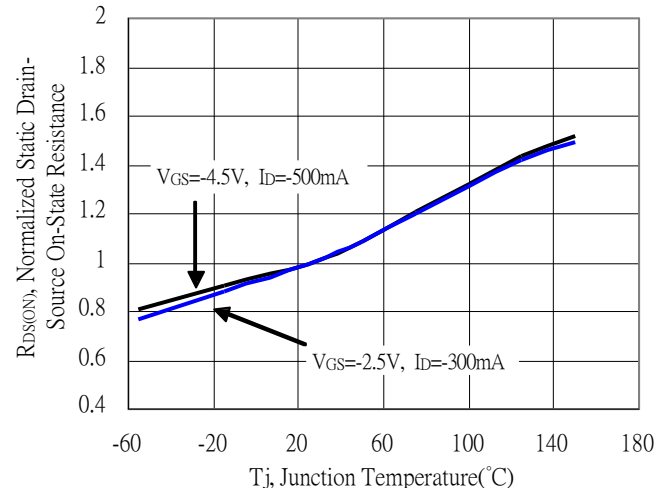
Reverse Drain Current vs Source-Drain Voltage



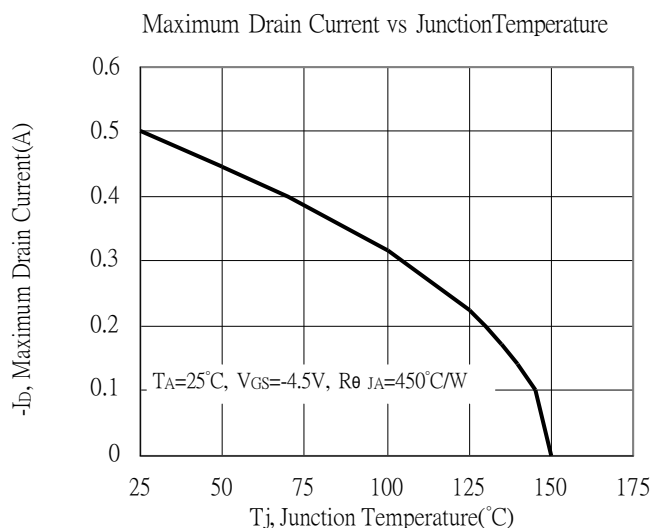
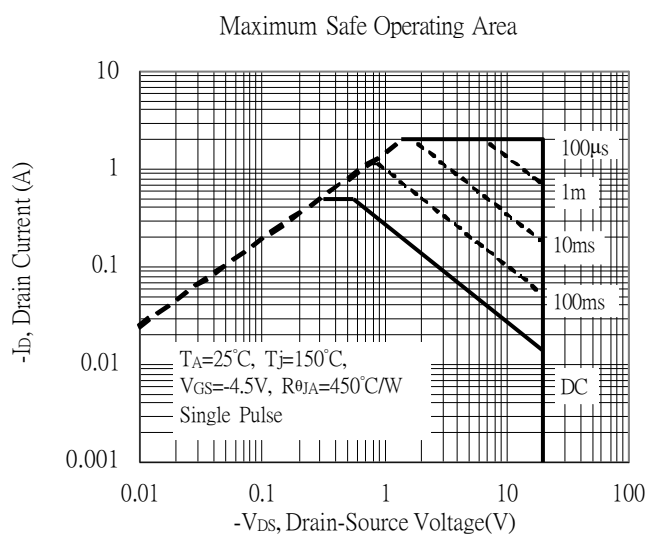
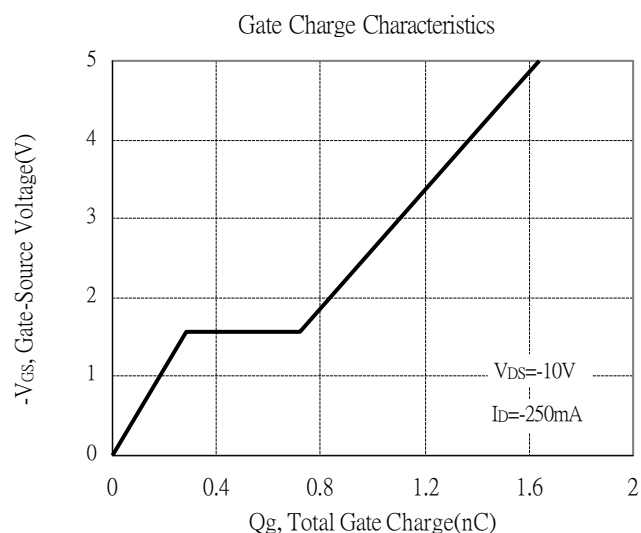
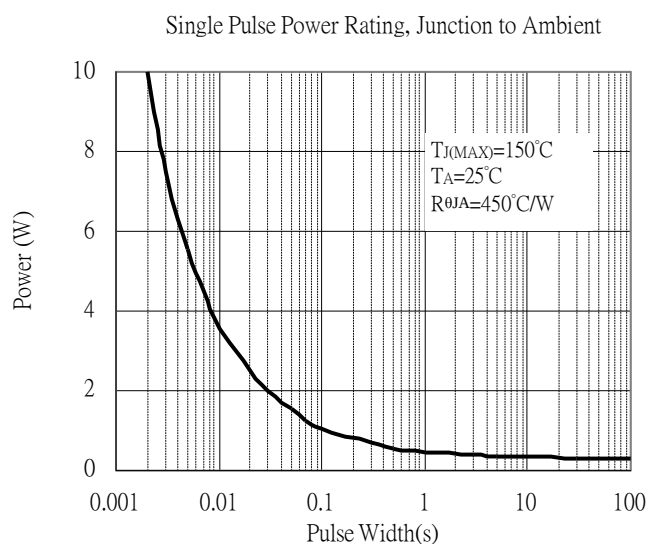
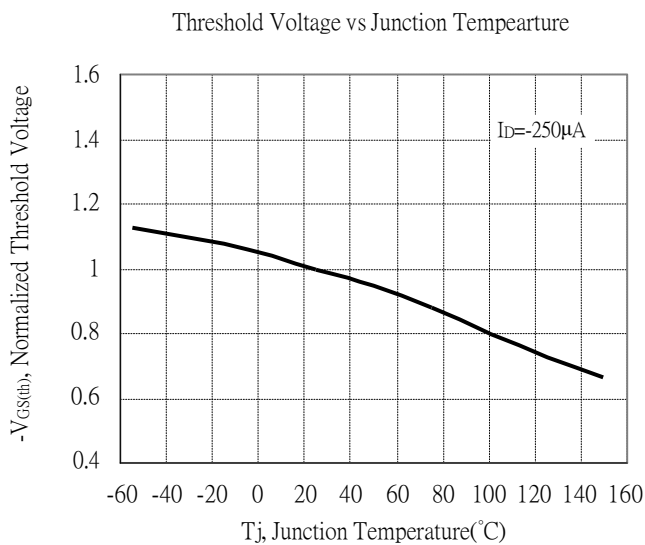
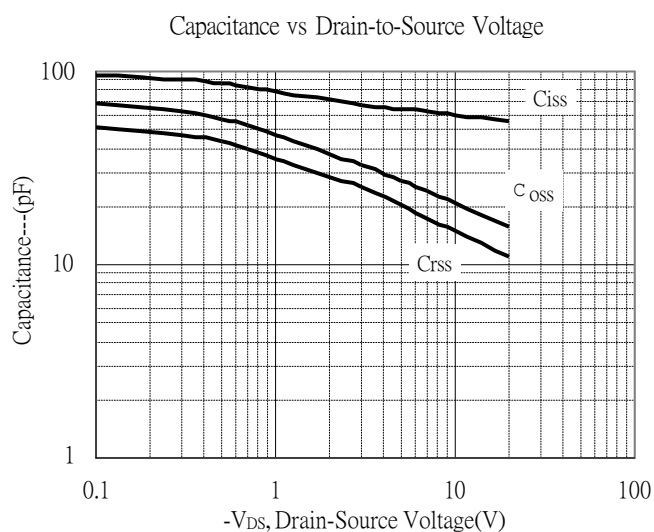
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

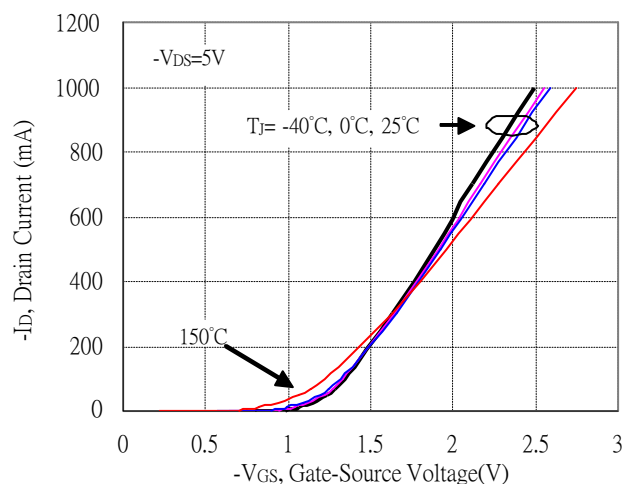


Typical Characteristics(Cont.)

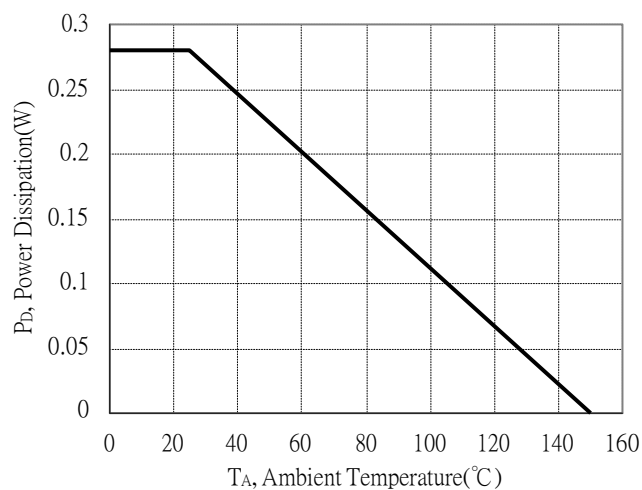


Typical Characteristics(Cont.)

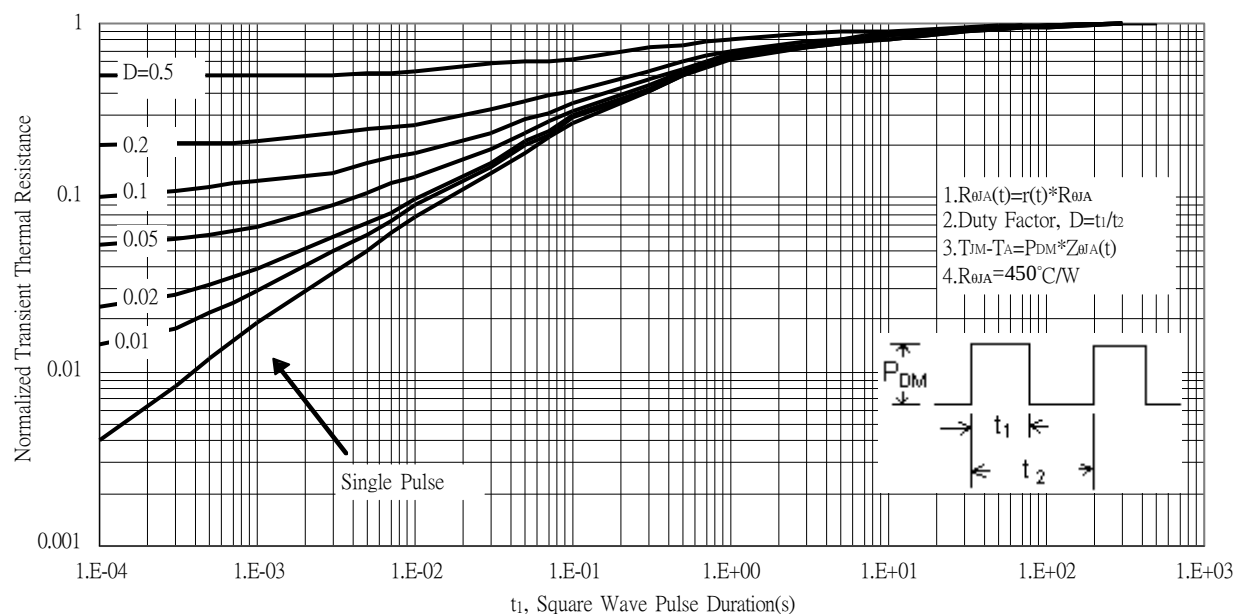
Typical Transfer Characteristics



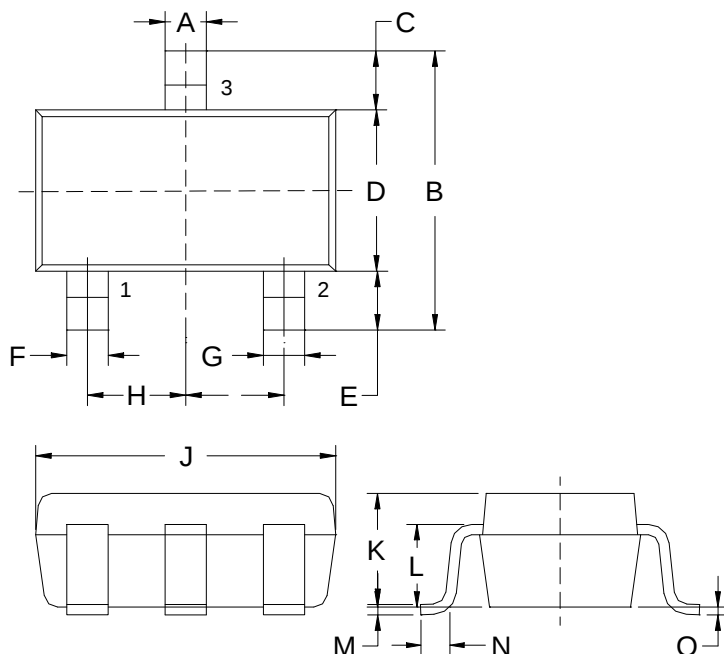
Power Derating Curve



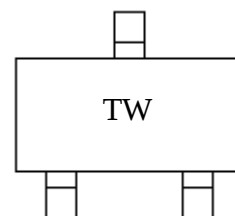
Transient Thermal Response Curves



SOT-523 Dimension



Marking:



3-Lead SOT-523 Plastic
 Surface Mounted Package
 Code: C3

Style: Pin 1.Gate 2.Source 3.Drain

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0079	0.0157	0.20	0.40	I	*0.0197	-	*0.50	-
B	0.0591	0.0669	1.50	1.70	J	0.0610	0.0650	1.55	1.65
C	0.0118	0.0197	0.30	0.50	K	0.0276	0.0315	0.70	0.80
D	0.0295	0.0335	0.75	0.85	L	0.0224	0.0248	0.57	0.63
E	0.0118	0.0197	0.30	0.50	M	0.0020	0.0059	0.05	0.15
F	0.0039	0.0118	0.10	0.30	N	0.0039	0.0118	0.10	0.30
G	0.0039	0.0118	0.10	0.30	O	0	0.0031	0	0.08
H	*0.0197	-	*0.50	-					