

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	25mΩ@4.5V	5A
	35mΩ@2.5V	
-20V	70mΩ@-4.5V	-4A
	90mΩ@-2.5V	

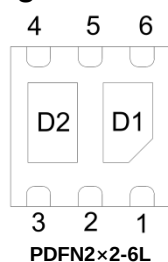
Feature

- Low On-Resistance
- Low Input Capacitance

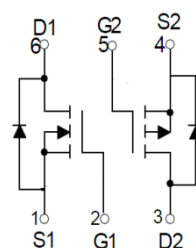
Application

- Power Management Functions
- DC-DC Converters

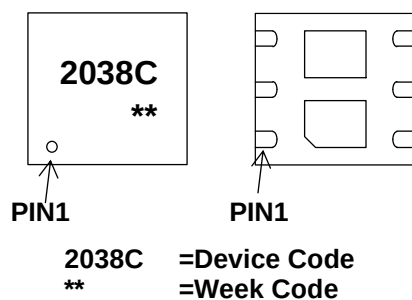
Package



Circuit diagram



Marking



**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V_{DS}	20	-20	V
Gate-Source Voltage	V_{GS}	± 12	± 12	V
Continuous Drain Current ¹	I_D	5	-4	A
Pulsed Drain Current	I_{DM}	20	-16	A
Storage Temperature	T_{STG}	-55 ~ +150		

Notes :

1.Surface mounted on FR4 board using the minimum recommended pad size

Electrical characteristics N-Channel Q1 (T_A=25 °C, unless otherwise noted)

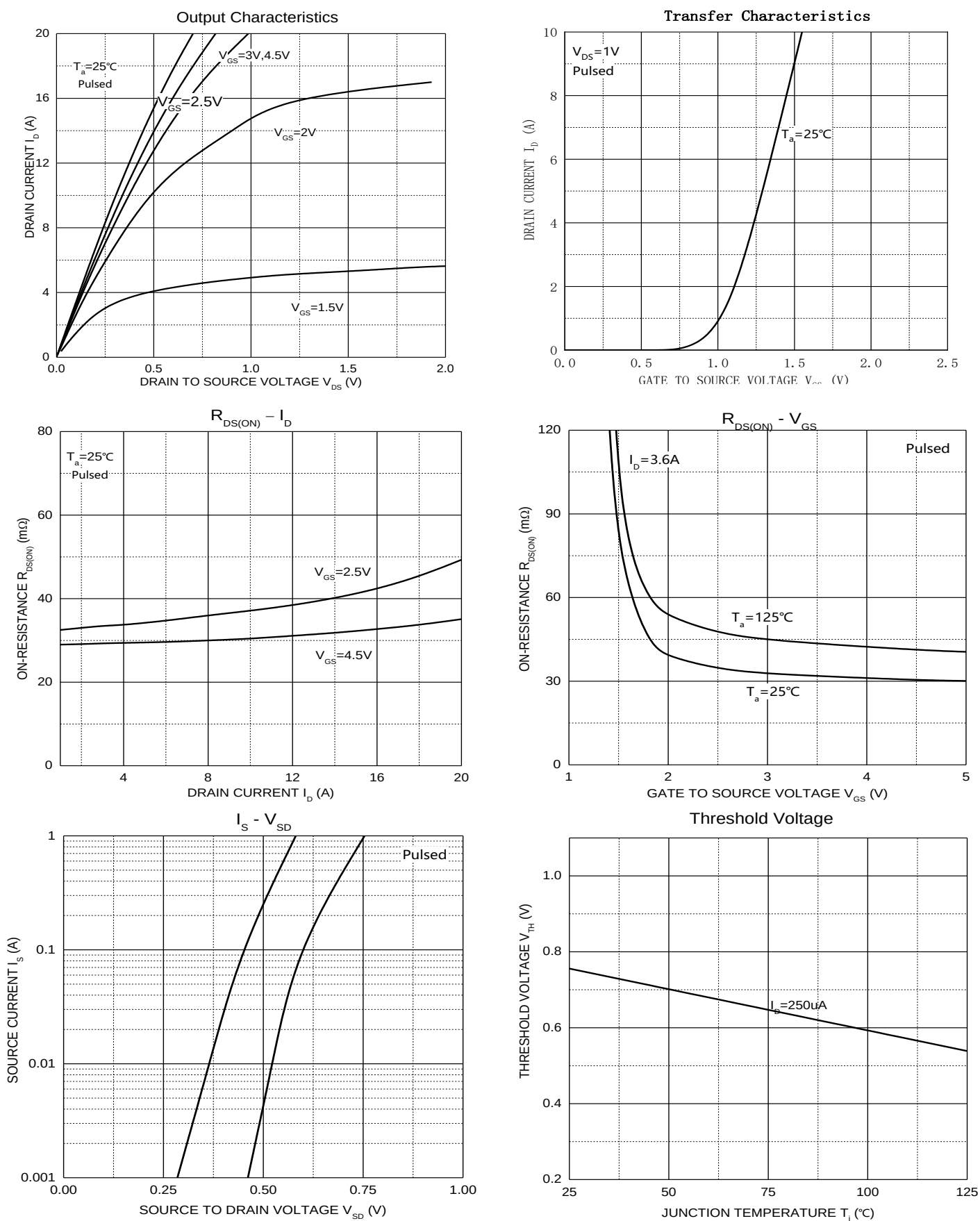
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±0.1	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =4.5A		25	38	mΩ
		V _{GS} =2.5V, I _D =3.5A		35	60	
Diode forward voltage	V _{SD}	I _S =1.7A,V _{GS} =0V		0.7	1.3	V
Dynamic characteristics						
Total gate charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =4A		11		nC
Gate-source charge	Q _{gs}			2.3		
Gate-drain charge	Q _{gd}			2.5		
Input Capacitance	C _{iss}	V _{DS} =8V,V _{GS} =0V,f=1MHz		800		pF
Output Capacitance	C _{oss}			155		
Reverse Transfer Capacitance	C _{rss}			125		
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =10V , V _{GS} =4V , I _D =1A R _G =10Ω		18		ns
Turn-on rise time	t _r			5		
Turn-off delay time	t _{d(off)}			43		
Turn-off fall time	t _f			20		

Electrical characteristics P-Channel Q2 ($T_A=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-16V,V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = -250μA	-0.5	-0.7	-1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -0.5A		70	90	mΩ
		V _{GS} = -2.5V, I _D = - 0.5A		90	110	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V,f=1MHz		405		pF
Output Capacitance	C _{oss}			75		
Reverse Transfer Capacitance	C _{rss}			55		
Gate resistance	R _g	f =1MHz		6		Ω
Total Gate Charge	Q _g	V _{DS} =-10V,V _{GS} =-2.5V,ID=-3A		3.3	12	nC
Gate-Source Charge	Q _{gs}			0.7		
Gate-Drain Charge	Q _{gd}			1.3		
Turn-on delay time	t _{d(on)}	V _{DD} =-10V,V _{GEN} =-4.5V,I _D =-1A R _L =10Ω,R _{GEN} =1Ω		11		ns
Turn-on rise time	t _r			35		
Turn-off delay time	t _{d(off)}			30		
Turn-off fall time	t _f			10		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1.25A		-0.7	-1.3	V

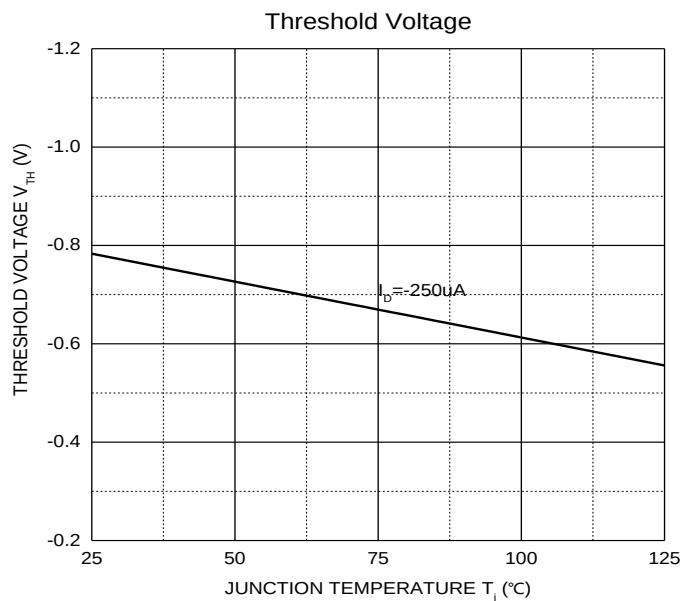
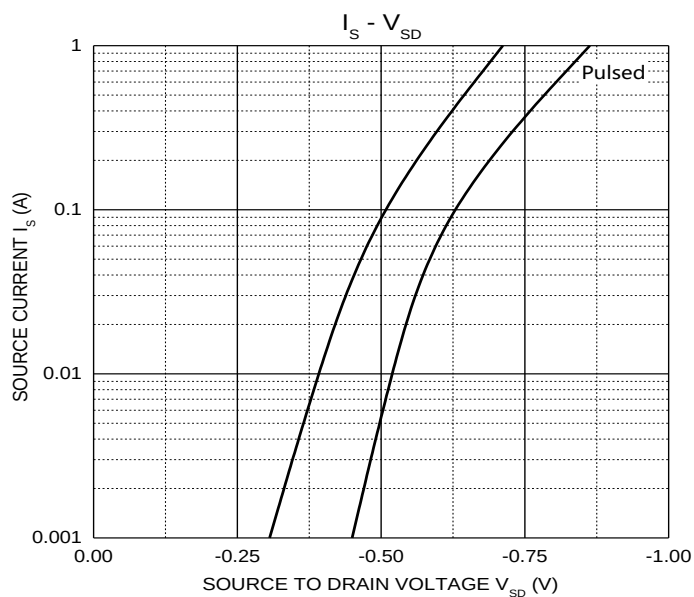
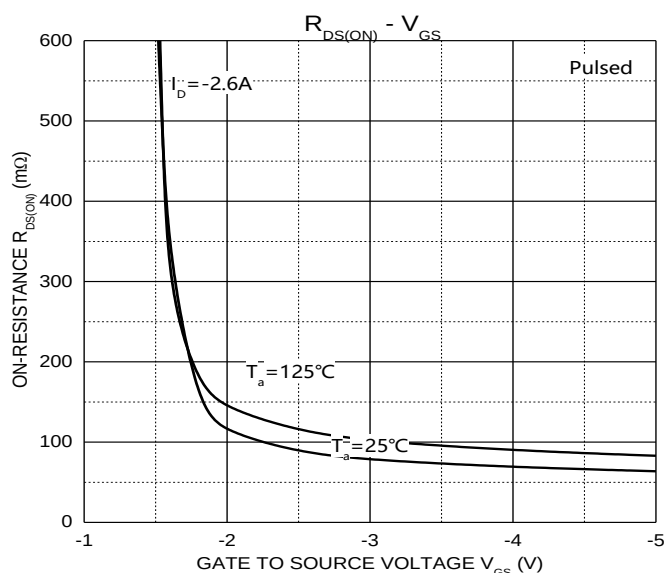
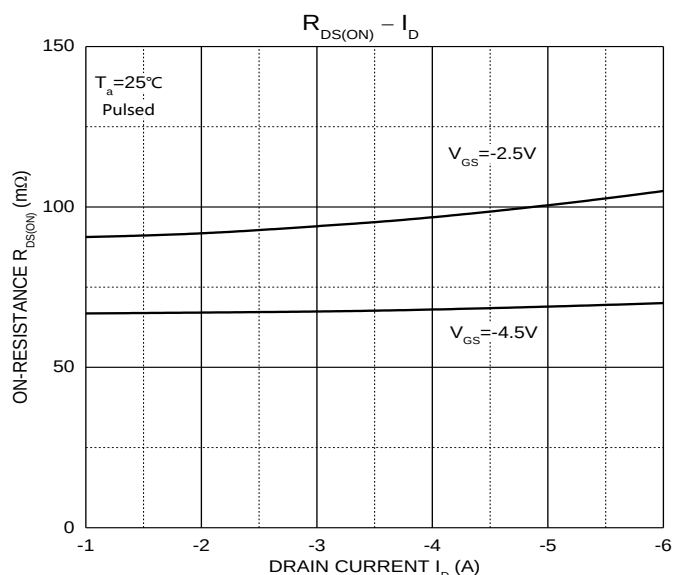
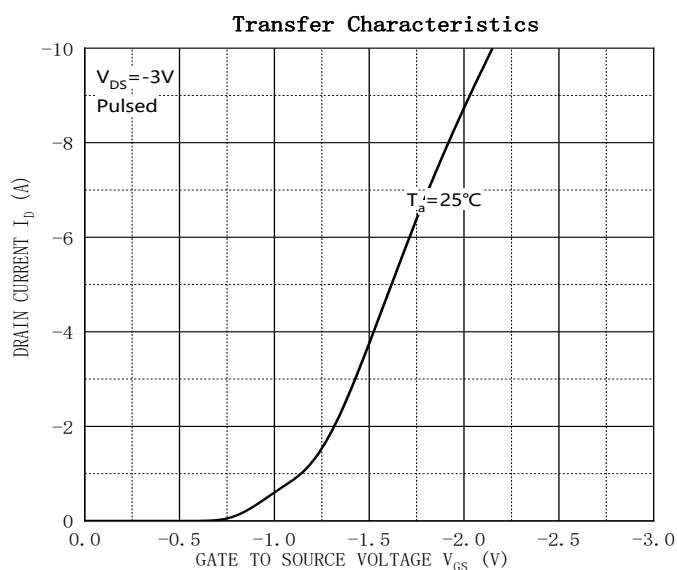
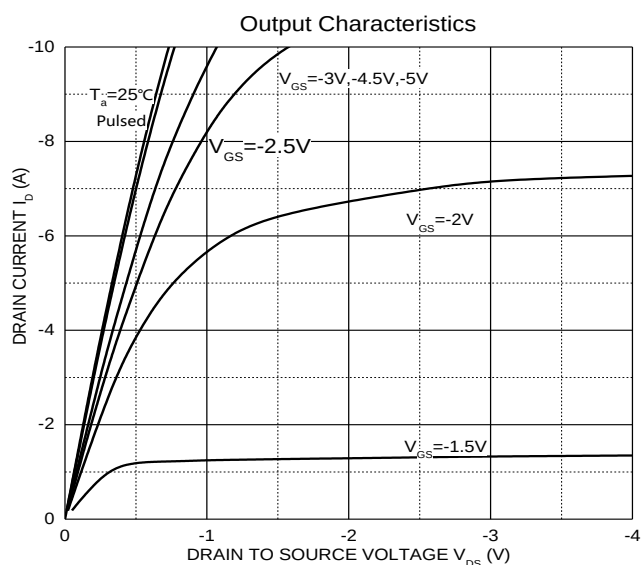


Typical Characteristics N-Channel Q1



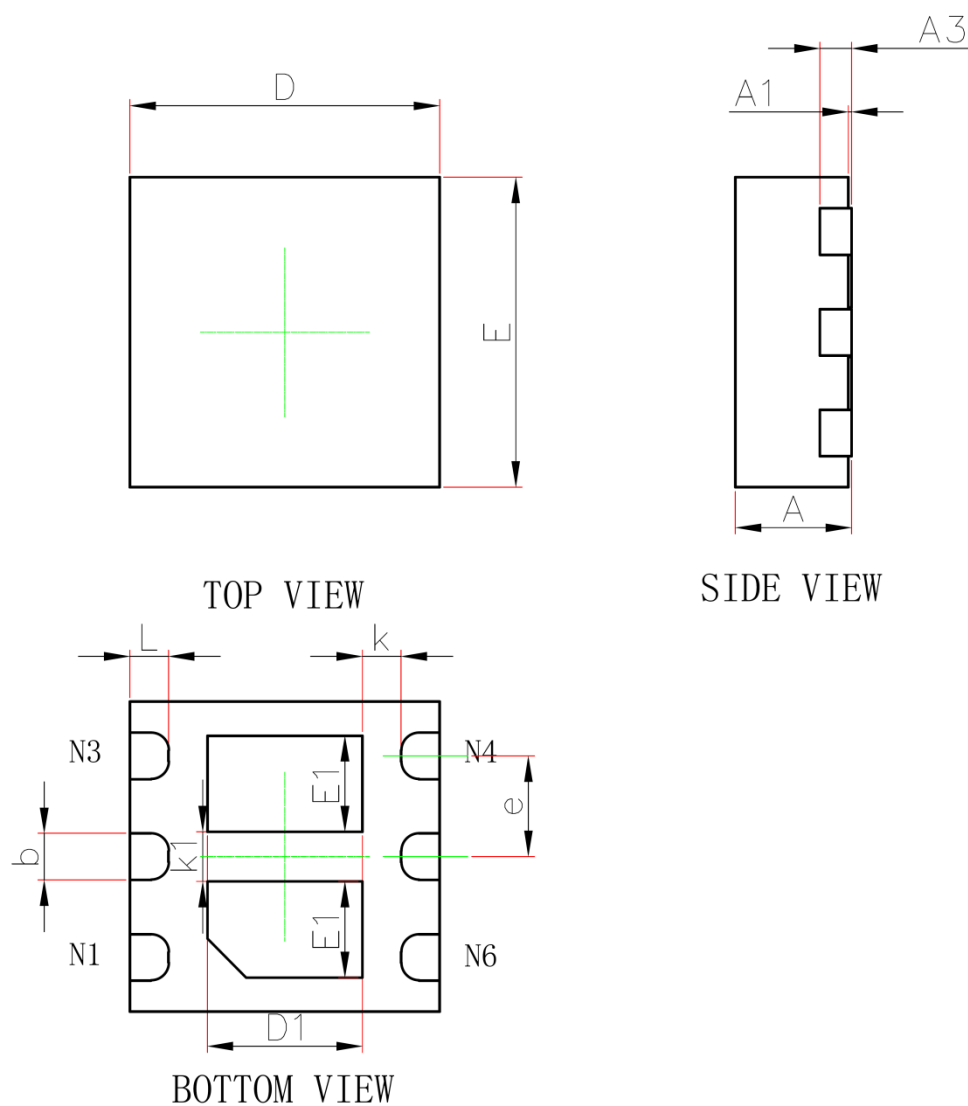


Typical Characteristics P-Channel Q2





PDFN2*2-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.900	1.100	0.035	0.043
E1	0.520	0.720	0.020	0.028
b	0.250	0.350	0.010	0.014
e	0.650 TYP.		0.026 TYP.	
k	0.200MIN.		0.008MIN.	
L	0.200	0.300	0.008	0.012