

General Description

The ELPW5208 is an integrated 130mΩ power switch for self-powered and bus-powered Universal Series Bus (USB) applications. A built-in charge pump is used to drive the N-Channel MOSFET that is free of parasitic body diode to eliminate any reversed current flow across the switch when it is powered off. Its low quiescent current (16μA) and small package (SOT23-5) is particularly suitable in battery-powered portable equipment. Several protection functions include soft start to limit inrush current during plug-in, current limiting at 1.2A to meet USB power requirement, and thermal shutdown to protect damage under over current conditions.

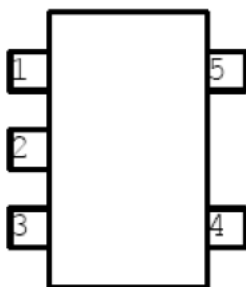
Features

- ◆ 130mΩ Low Rdson, High-side NMOSFET
- ◆ Guaranteed 1200mA Continuous Current
- ◆ 2.5V to 7V Input Voltage
- ◆ Low Quiescent Current: 16uA
- ◆ Soft Start Function
- ◆ Built-In Short-Circuit Protection
- ◆ Built-in Thermal Protection
- ◆ RoHS Compliant and 100% Lead (Pb)-Free

Applications

- ◆ Power Switch
- ◆ USB Device
- ◆ Battery Charger Circuits

Pin Assignments



Pin Description

SOT23-5	Pin Name	Pin Function
1	VOUT	Output Pin
2	GND	Ground Pin
3	N.C	No Connector
4	EN	Device Enable(active high)
5	VIN	Input Pin



Absolute Maximum Ratings

- ◆ Input Voltage to GND (VINA, VINB) ----- 7V
- ◆ EN Voltage -----0.3V to 7V
- ◆ Operating Junction Temperature Range (TJ) -----20°C to 100°C
- ◆ Maximum Soldering Temperature (at leads, 1 0sec) ----- 300°C
- ◆ HBM(Human Body Mode)----- 2KV

Thermal Information

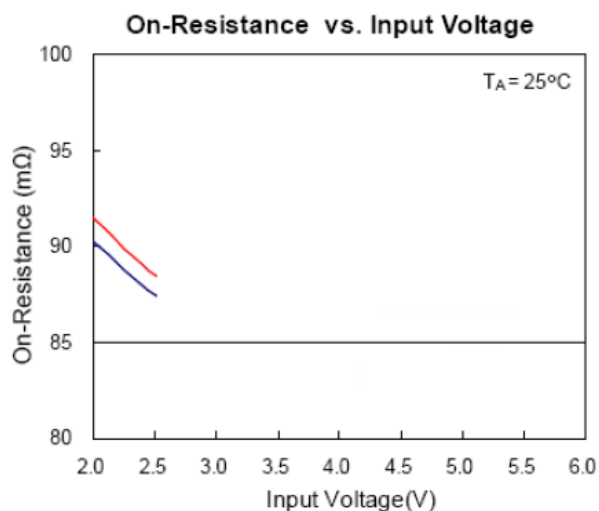
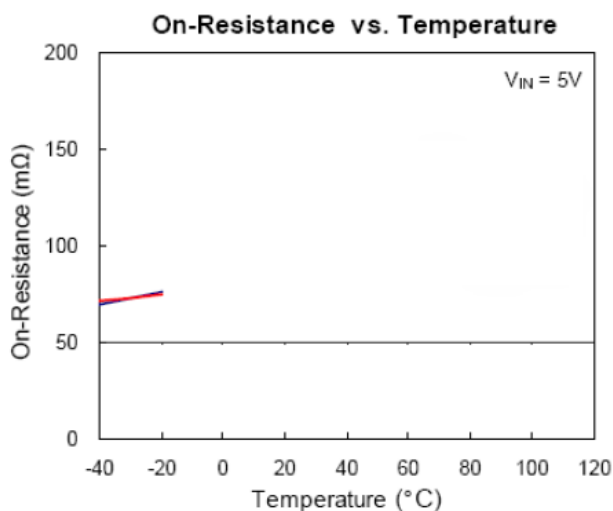
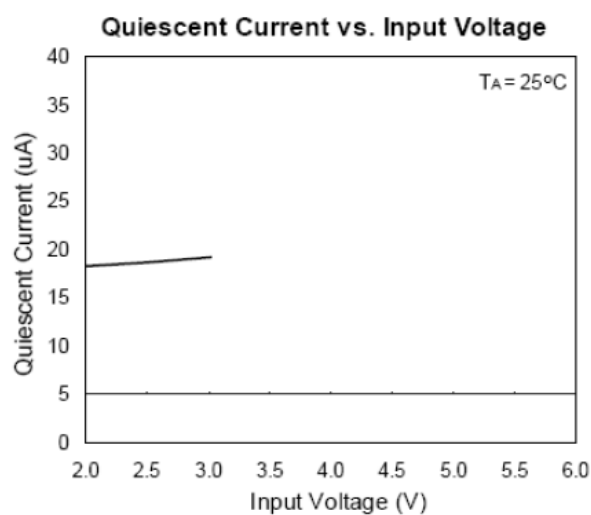
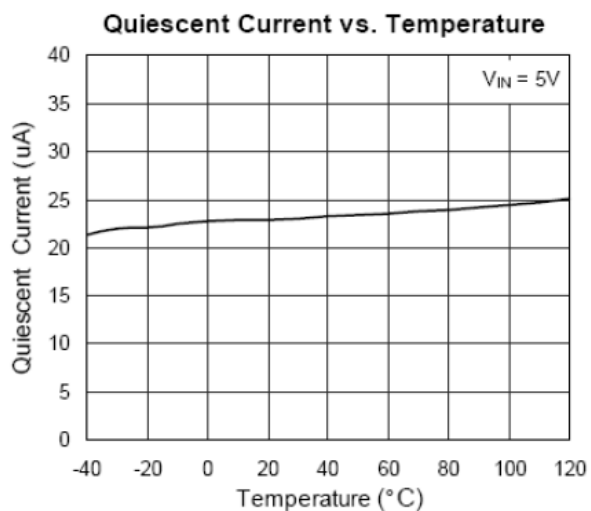
- ◆ Maximum Power Dissipation (PD) ----- 0.25W
- ◆ Thermal Resistance (JA) ----- 250°C/W

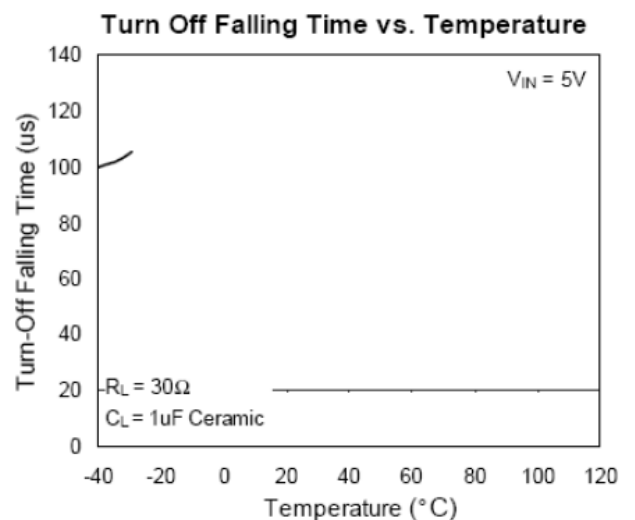
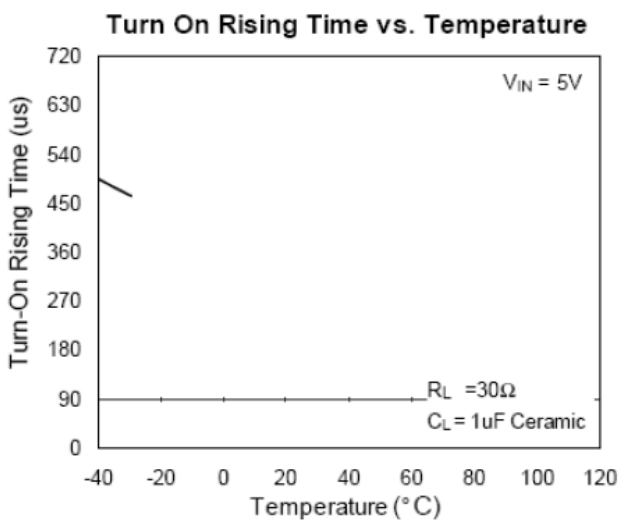
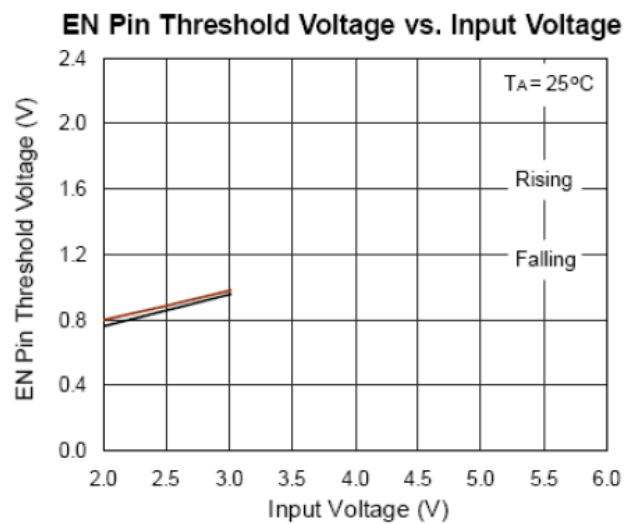
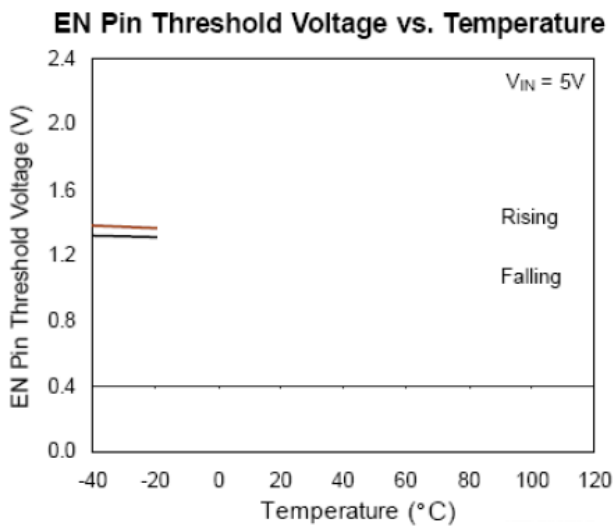
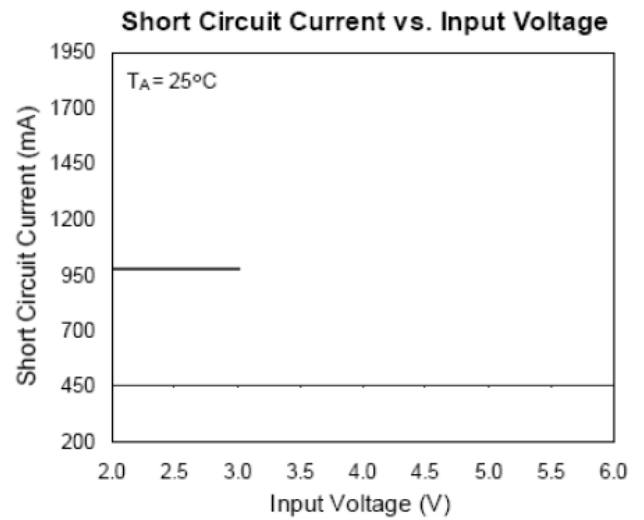
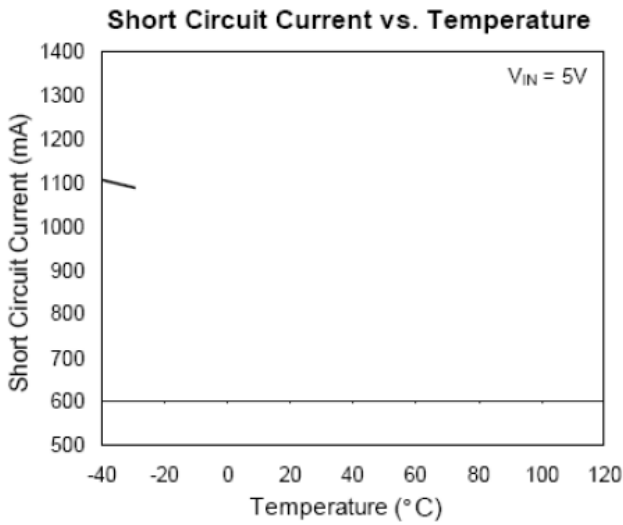
Electrical Characteristics

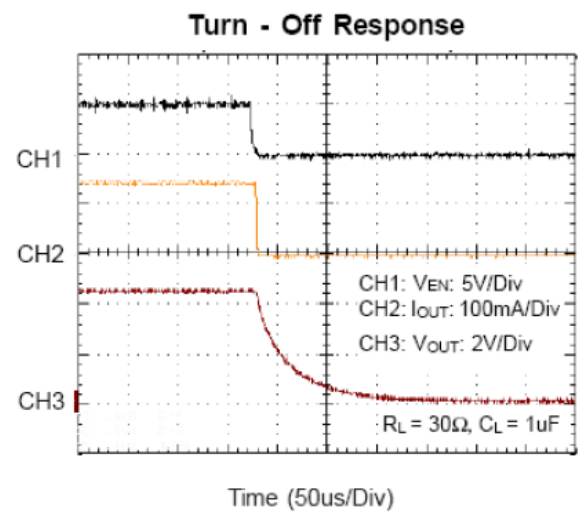
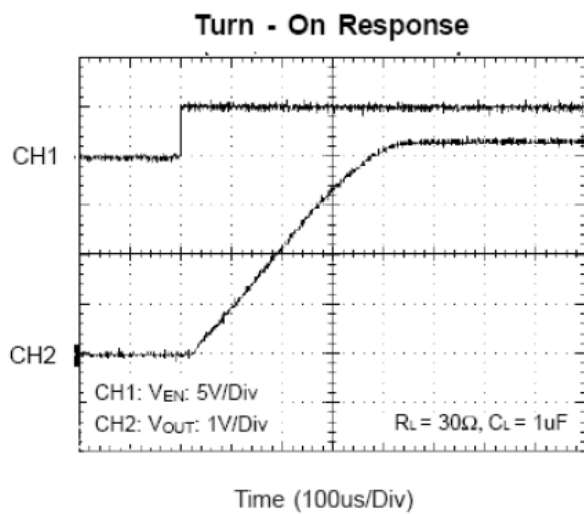
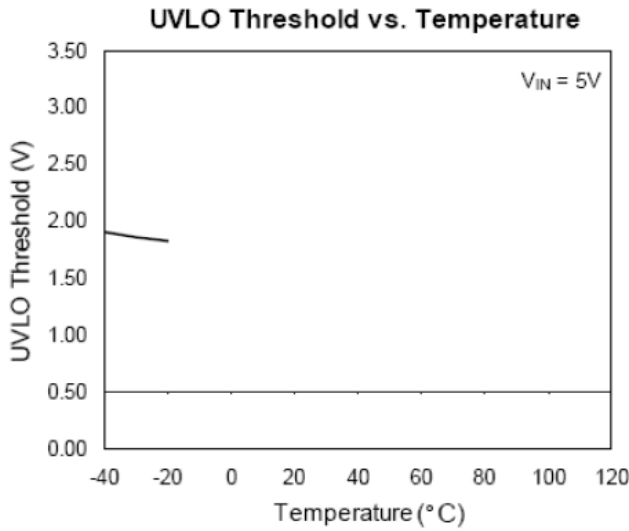
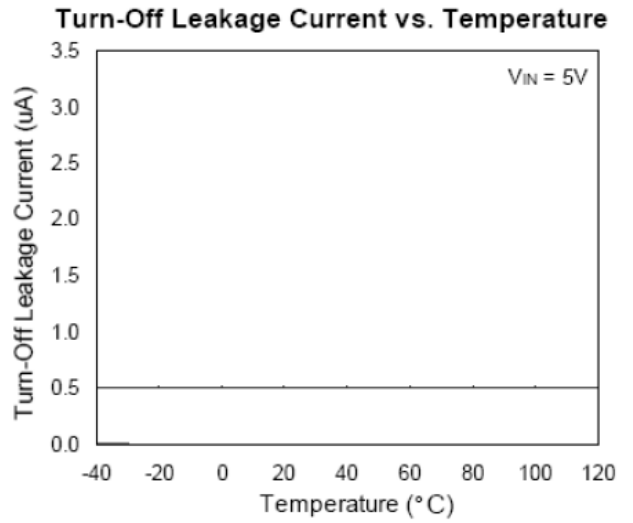
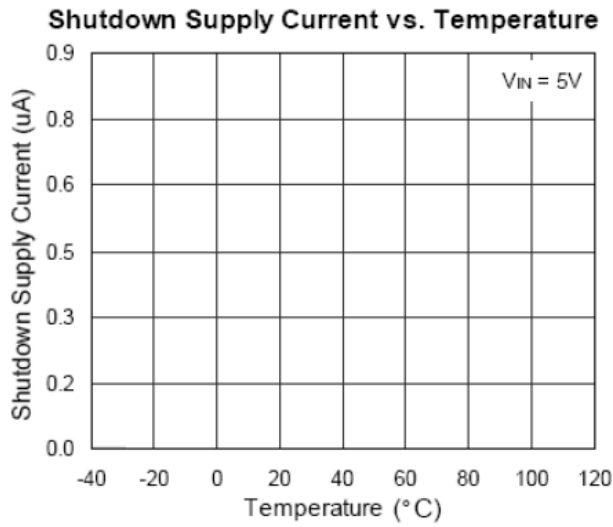
(Over recommended operating conditions unless specified otherwise) $V_{INA} = 3.6V, EN = High, T_A = 25^\circ C$)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{IN}	Input Voltage		2.5		6	V
I_{out}	Output Current Limited			1200		mA
$R_{DS(ON)}$	Output NMOSFET RDS(ON)			130		m
I_Q	Quiescent Current	$V_{in} = 3V$		16	28	uA
I_{SHDN}	Shutdown Current	$EN = GND$			1	μA
$V_{EN(L)}$	Enable Threshold Low				0.4	V
$V_{EN(H)}$	Enable Threshold High		1.4			V
I_{EN}	Input Low Current	$V_{IN} = V_{EN} = 5.5V$	-1		1	μA

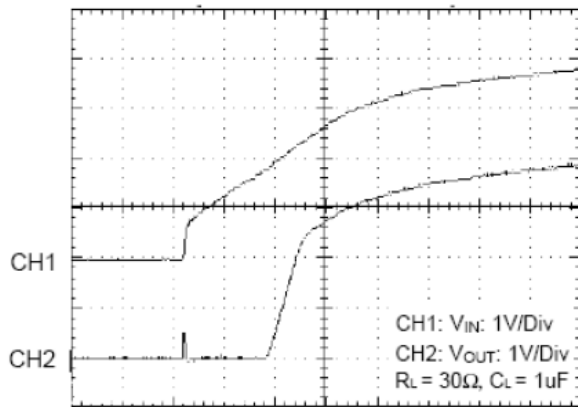
Typical Operation Characteristics





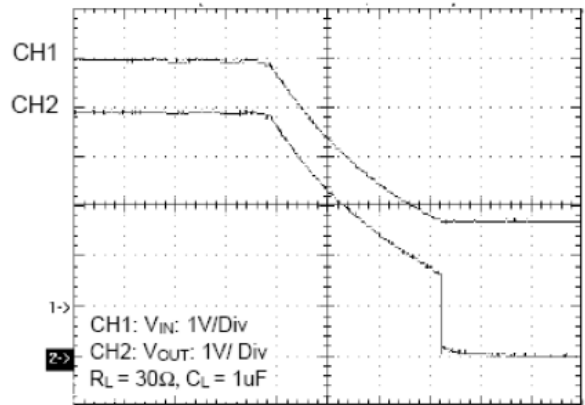


UVLO at Rising



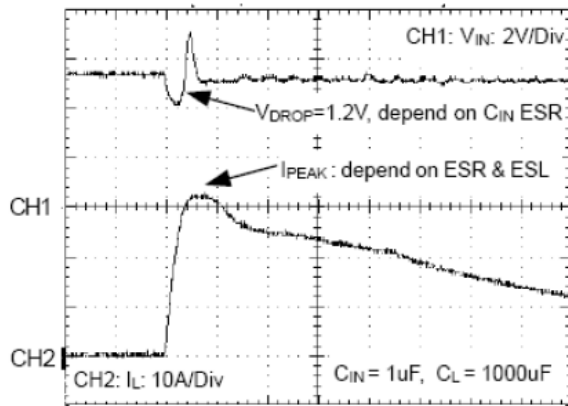
Time (500us/Div)

UVLO at Falling



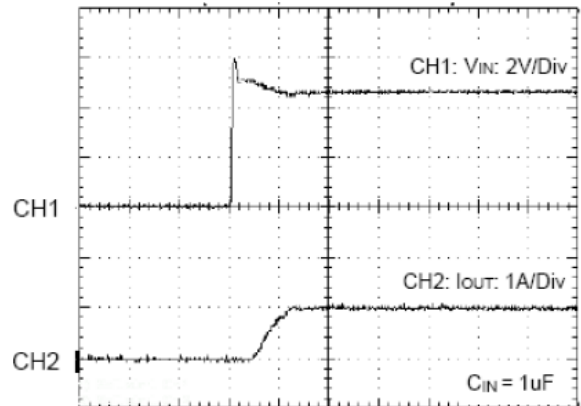
Time (100ms/Div)

Inrush Short Circuit Response



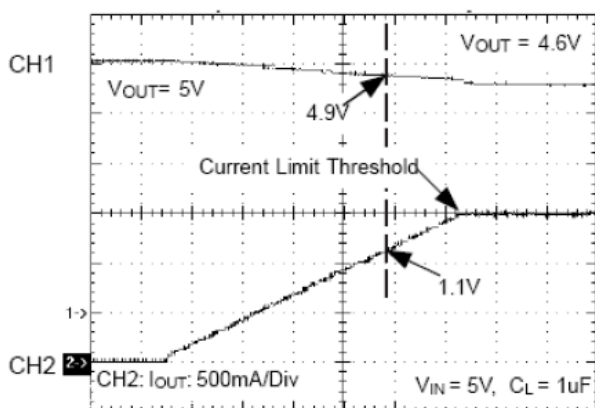
Time (25us/Div)

Soft - start Short Circuit Response



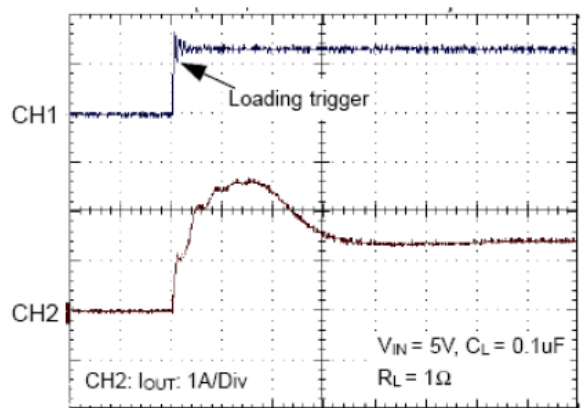
Time (5us/Div)

Ramped Load Response



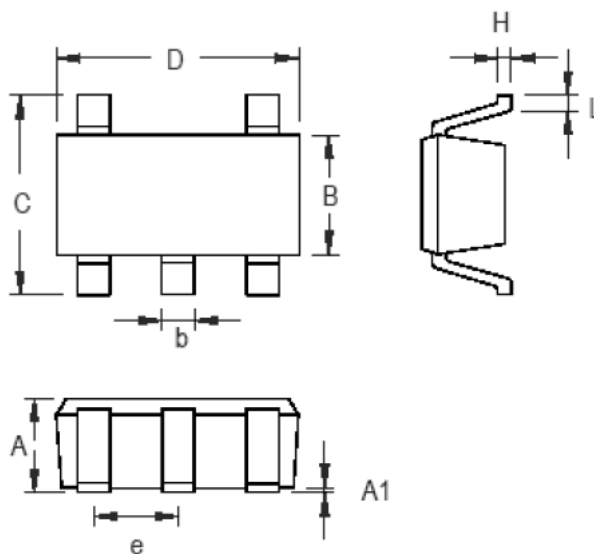
Time (1ms/Div)

Current Limit Response



Time (5us/Div)

Package Information(SOT23-5)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.889	1.295	0.035	0.051
A1	0.000	0.152	0.000	0.006
B	1.397	1.803	0.055	0.071
b	0.356	0.559	0.014	0.022
C	2.591	2.997	0.102	0.118
D	2.692	3.099	0.106	0.122
e	0.838	1.041	0.033	0.041
H	0.080	0.254	0.003	0.010
L	0.300	0.610	0.012	0.024