

# GSM2318

## 40V N-Channel Enhancement Mode MOSFET

### Product Description

GSM2318, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge. These devices are particularly suited for low Voltage power management, such as smart Phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

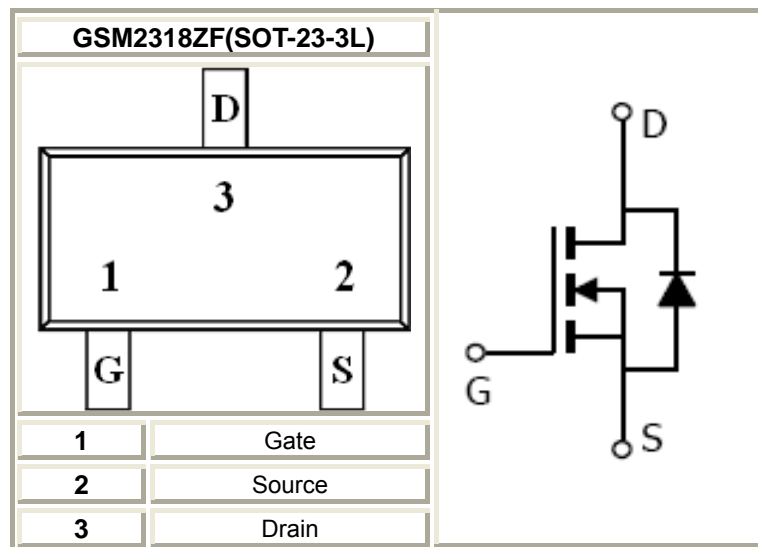
### Features

- 40V/3.6A,  $R_{DS(ON)}=60m\Omega@V_{GS}=10V$
- 40V/2.8A,  $R_{DS(ON)}=80m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

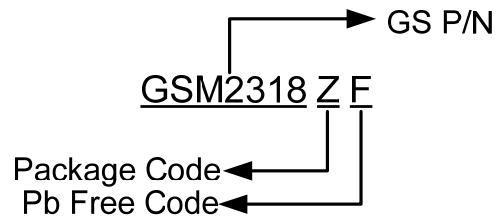
### Applications

- Portable Equipment
- Battery Powered System
- Net Working System

### Packages & Pin Assignments

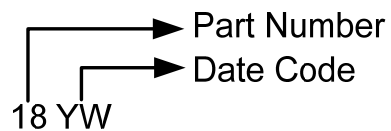


## Ordering Information



Part Number	Package	Quantity Reel
GSM2318ZF	SOT-23-3L	3000 PCS

## Marking Information



## Absolute Maximum Ratings

(T<sub>A</sub>=25°C unless otherwise noted)

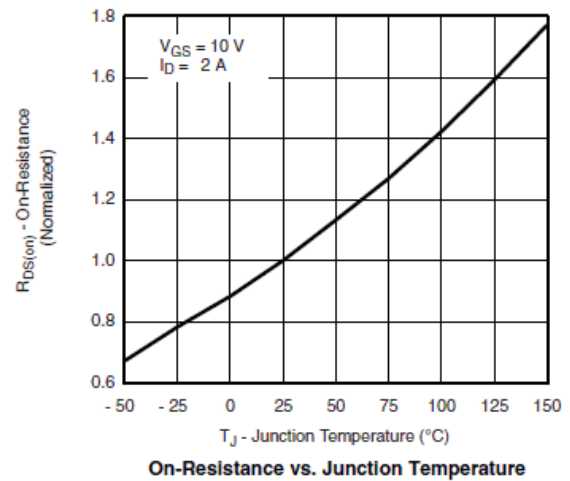
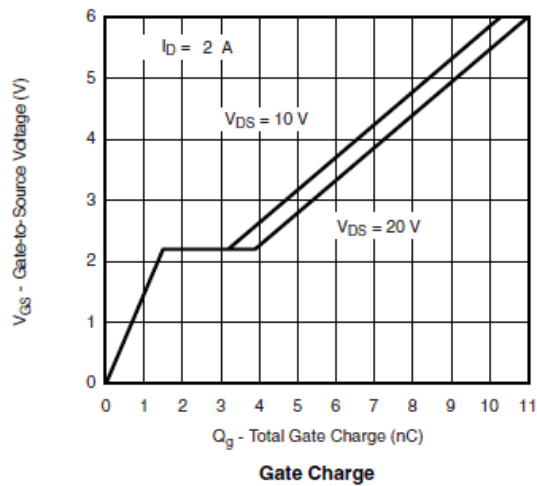
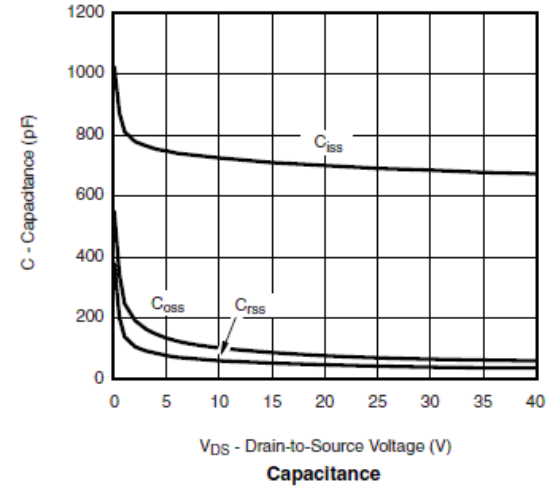
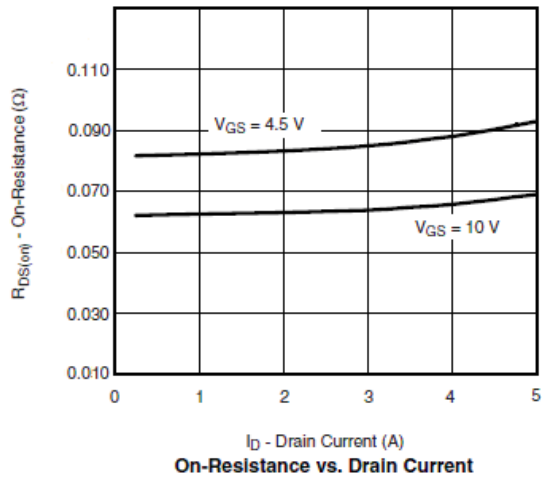
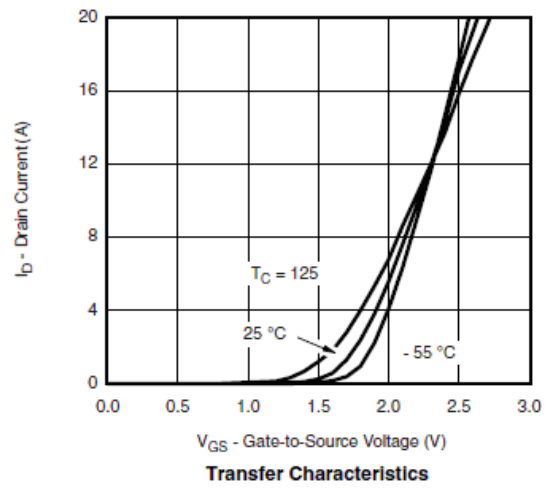
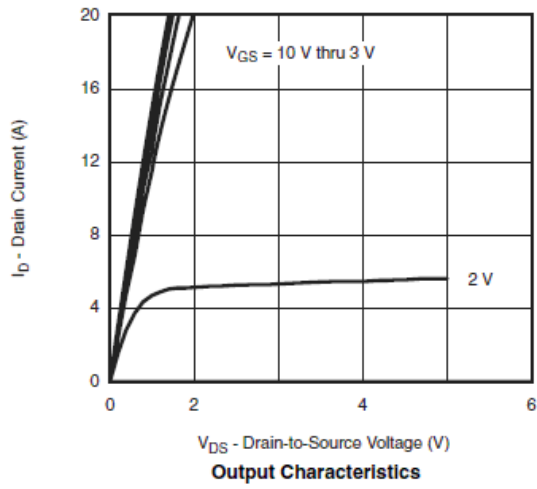
Symbol	Parameter	Typical	Unit
V <sub>DSS</sub>	Drain-Source Voltage	40	V
V <sub>GSS</sub>	Gate –Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current(T <sub>J</sub> =150°C)	T <sub>A</sub> =25°C	3.6
		T <sub>A</sub> =70°C	2.8
I <sub>DM</sub>	Pulsed Drain Current	10	A
I <sub>S</sub>	Continuous Source Current(Diode Conduction)	1.6	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> =25°C	1.25
		T <sub>A</sub> =70°C	0.8
T <sub>J</sub>	Operating Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55/150	°C
R <sub>θJA</sub>	Thermal Resistance-Junction to Ambient	120	°C/ W

## Electrical Characteristics

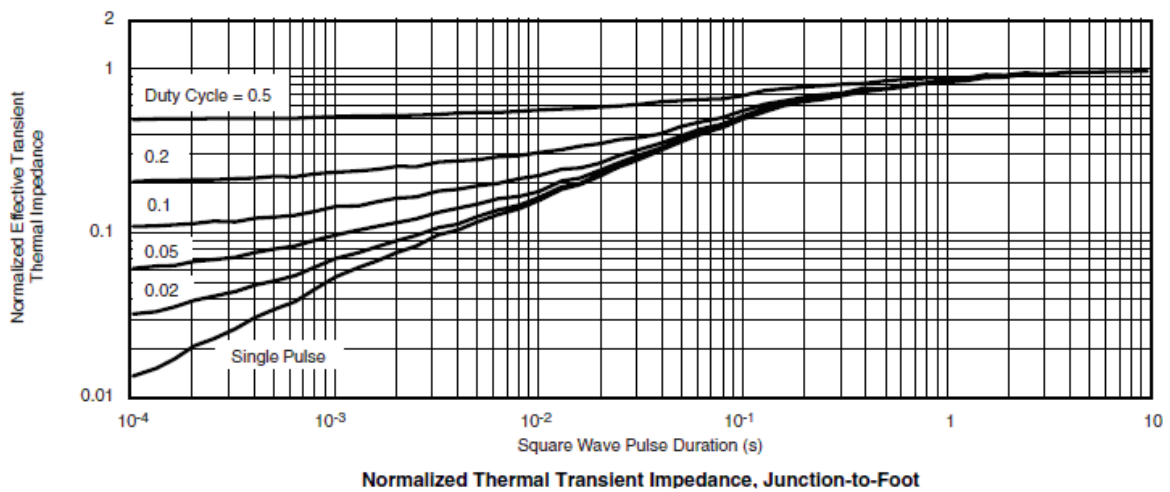
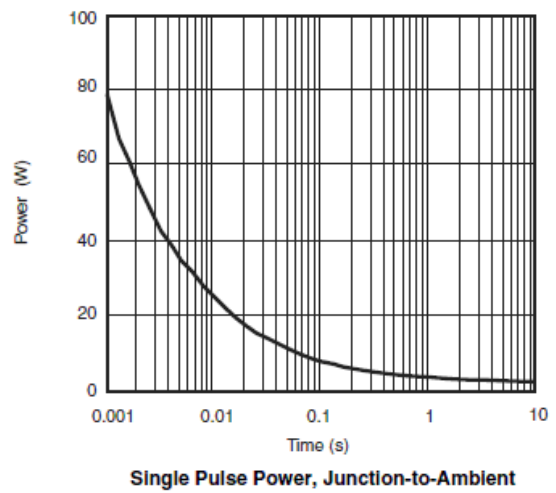
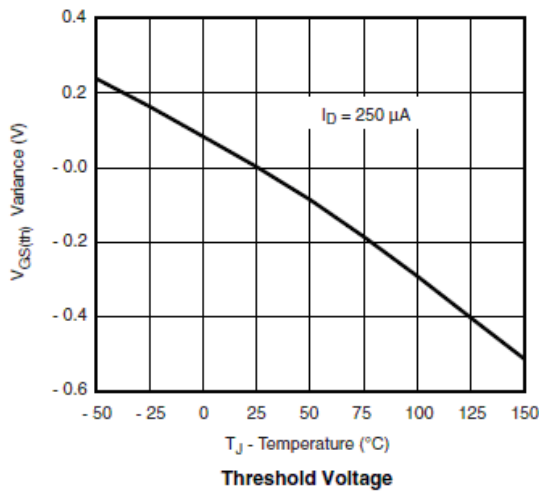
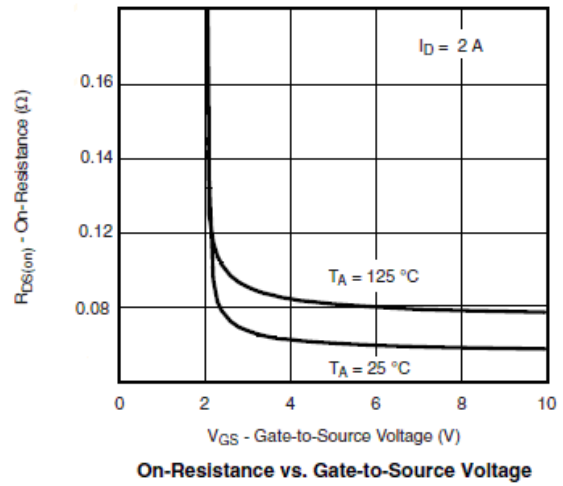
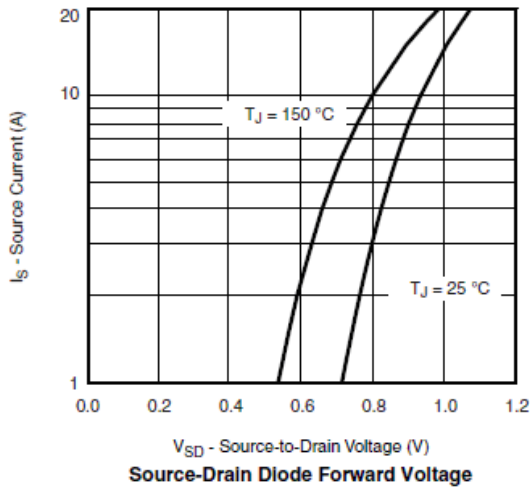
( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Static</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.0	V
$I_{GSS}$	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V$			1	uA
		$V_{DS}=40V, V_{GS}=0V$ $T_J=85^{\circ}\text{C}$			10	
$I_{D(on)}$	On-State Drain Current	$V_{DS} \geq 5V, V_{GS}=10V$	10			A
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=3.6A$		52	60	m $\Omega$
		$V_{GS}=4.5V, I_D=2.8A$		72	80	
$g_{fs}$	Forward Transconductance	$V_{DS}=10V, I_D=2.0A$		16		S
$V_{SD}$	Diode Forward Voltage	$I_S=1.5A, V_{GS}=0V$		0.85	1.2	V
<b>Dynamic</b>						
$Q_g$	Total Gate Charge	$V_{DS}=20V, V_{GS}=4.5V$ $I_D=2A$		10	15	nC
$Q_{gs}$	Gate-Source Charge			2		
$Q_{gd}$	Gate-Drain Charge			2.5		
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V$ $f=1\text{MHz}$		650		pF
$C_{oss}$	Output Capacitance			75		
$C_{rss}$	Reverse Transfer Capacitance			45		
$t_{d(on)}$	Turn-On Time	$V_{DD}=15V, R_L=15\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=6\Omega$		8	15	ns
$t_r$				12	20	
$t_{d(off)}$	Turn-Off Time			28	40	
$t_f$				8	15	

## Typical Performance Characteristics



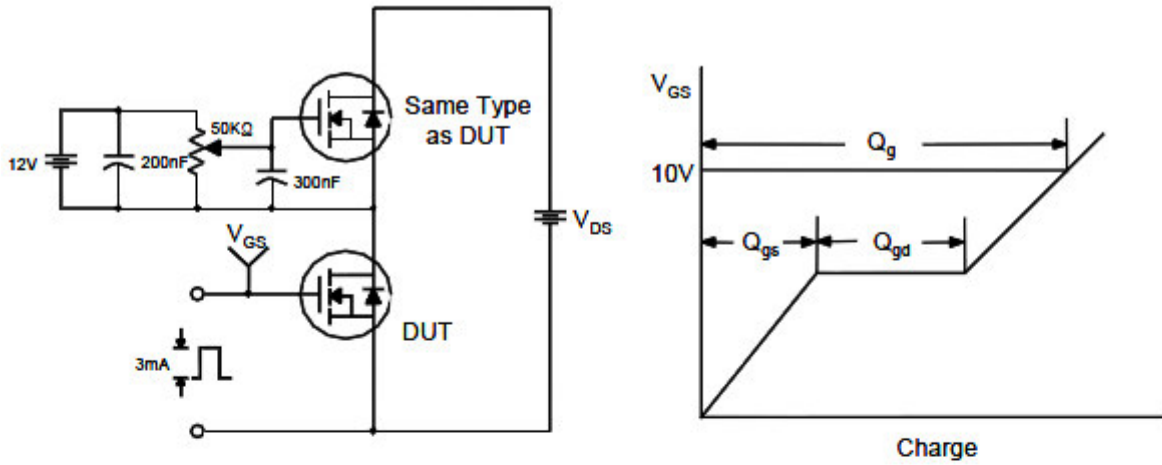
## Typical Performance Characteristics (continue)



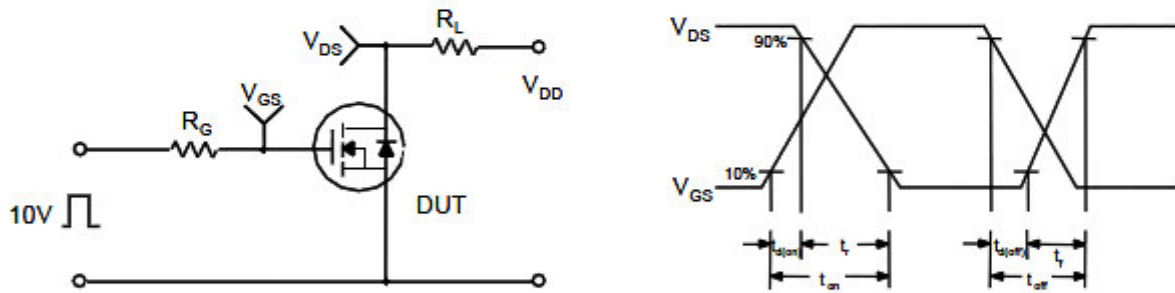
Normalized Thermal Transient Impedance, Junction-to-Foot

## Typical Characteristics

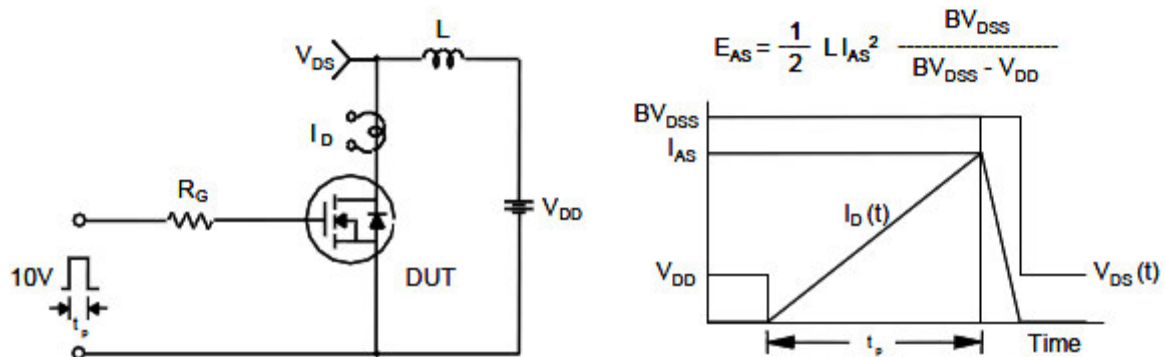
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

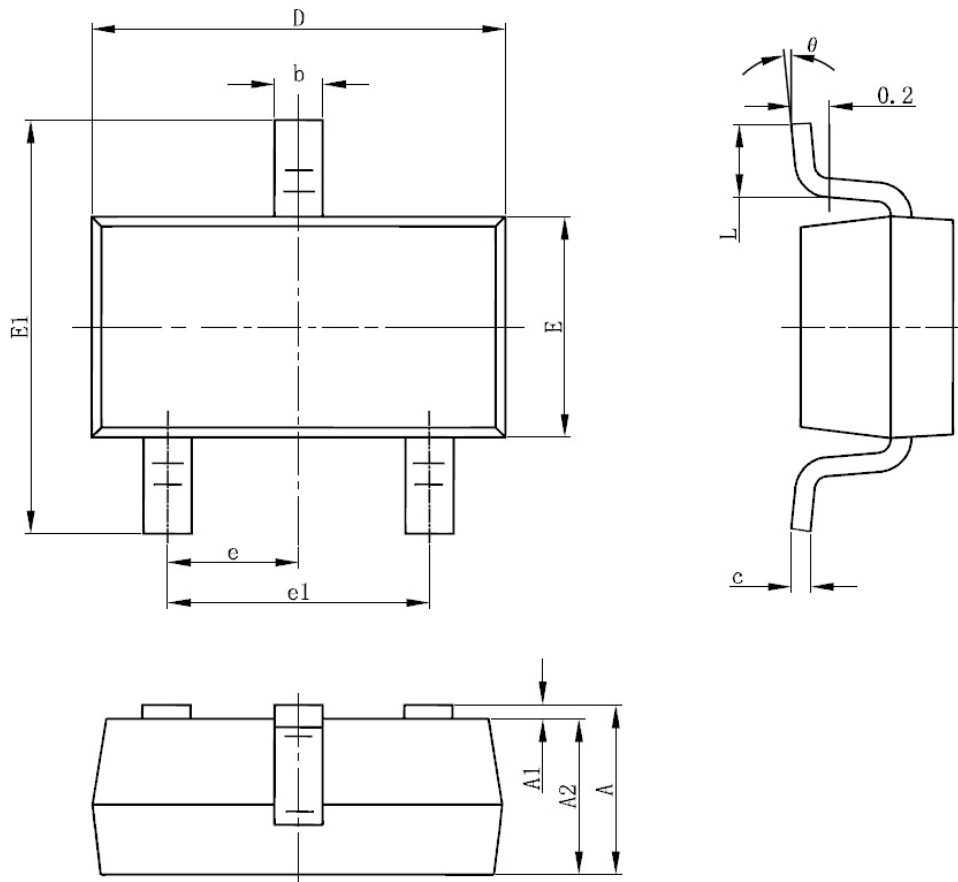


Unclamped Inductive Switching Test Circuit & Waveforms



## Package Dimension

### SOT-23-3L







### Dimensions

SYMBOL	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.4	0.012	0.016
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950 (TYP)		0.037 (TYP)	
e1	1.8	2	0.071	0.079
L	0.700 REF		0.028 REF	
L1	0.3	0.6	0.012	0.024
Q	0°	8°	0°	8°





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