/ Descriptions

TOLL-8L N

N-Channel MOSFET in a TOLL-8L Plastic Package .

/ Features

V_{DS}(V)=100V I_D=330A

$R_{DS(ON)}$@10V≤1.5mΩ(Typ.1.2mΩ)

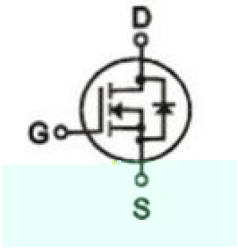
HF Product.

/ Applications

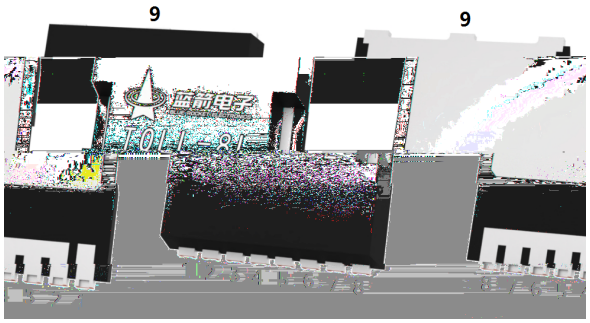
DC/DC

DC/DC converter,Power switch,Motor drives.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN2 3 4 5 6 7 8 S PIN9 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(T_C=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	330	A
Drain Current – Pulsed		I_{DM}	1320	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		P_{tot}	431	W
Single Pulse Avalanche Energy(V_{DS}=75V,V_{GS}=10V,L=0.3mH)		E_{AS}	540	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	40	/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.29	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	2.2	3.0	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=100A		1.2	1.5	mΩ
Diode Forward Voltage	V_{SD}	I_S=100A, V_{GS}=0V		0.85	1.1	V
Gate Resistance	R_g	f=1MHz		1		Ω
Input Capacitance	C_{iss}	V_{DS}=50V V_{GS}=0V f=1.0MHz		15800		pF
Output Capacitance	C_{oss}			1930		
Reverse Transfer Capacitance	C_{rss}			75		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=50V I_D=100A		260		nC
Gate Source Charge	Q_{gs}			75		
Gate Drain Charge	Q_{gd}			76		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$			81		
Turn-On Rise Time	t_r	V_{GS}=10V V_{DS}=50V R_G=6Ω I_D=100A		178		ns

/ Electrical Characteristic Curve

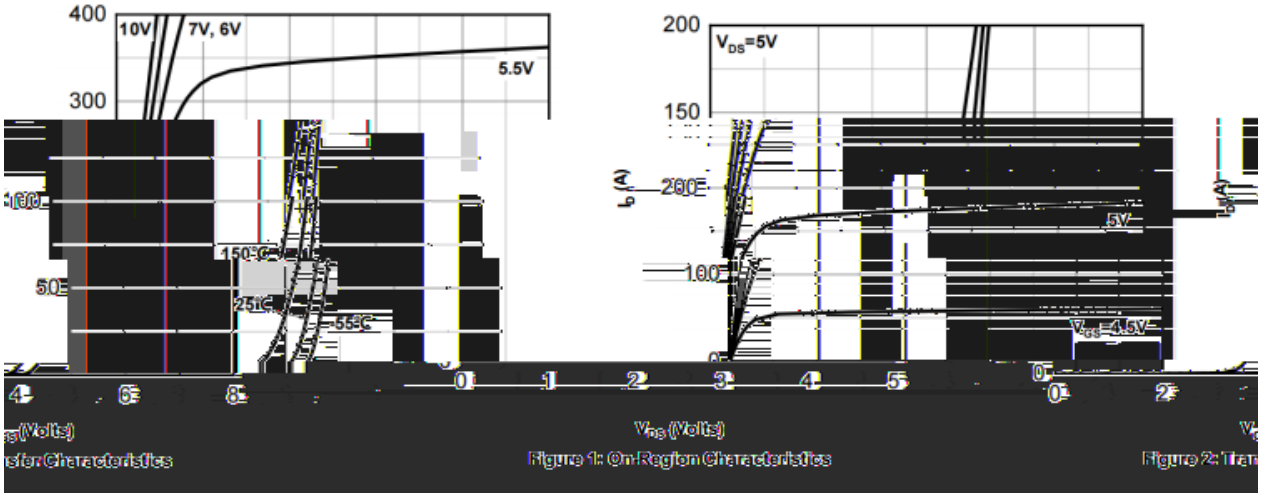


Figure 1: On-Region Characteristics

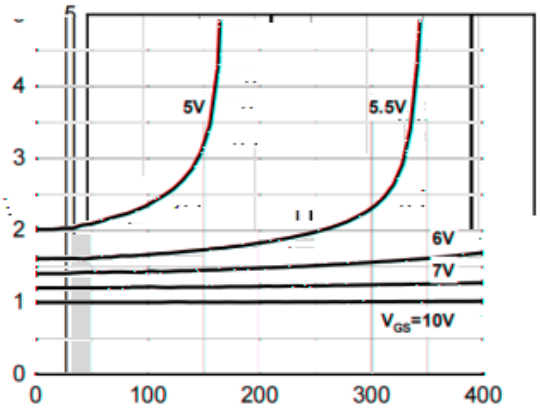


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

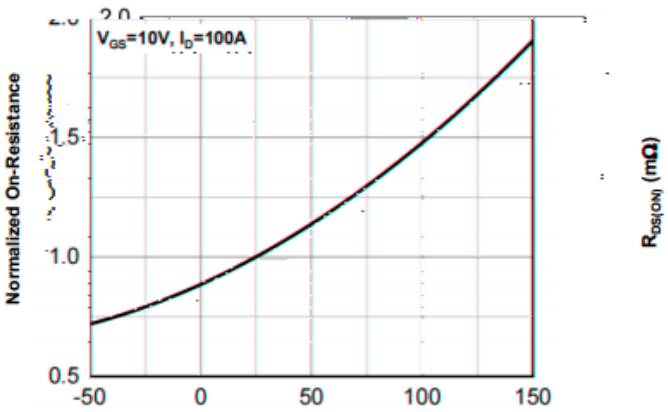


Figure 4: On-Resistance vs. Junction Temperature

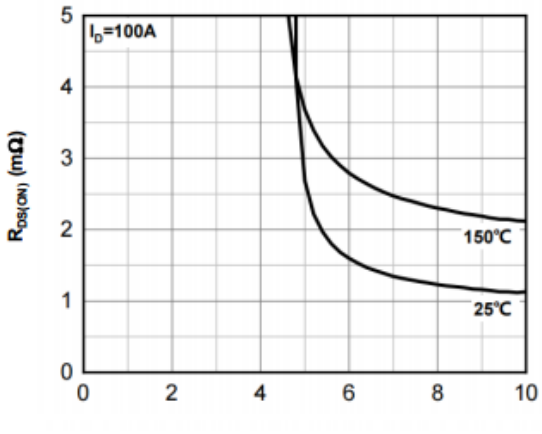


Figure 5: On-Resistance vs. Gate-Source Voltage

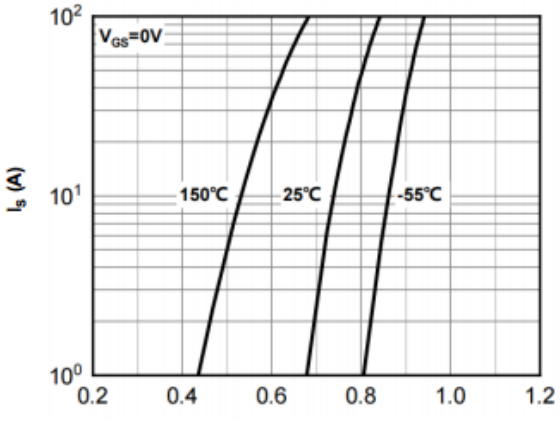


Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve

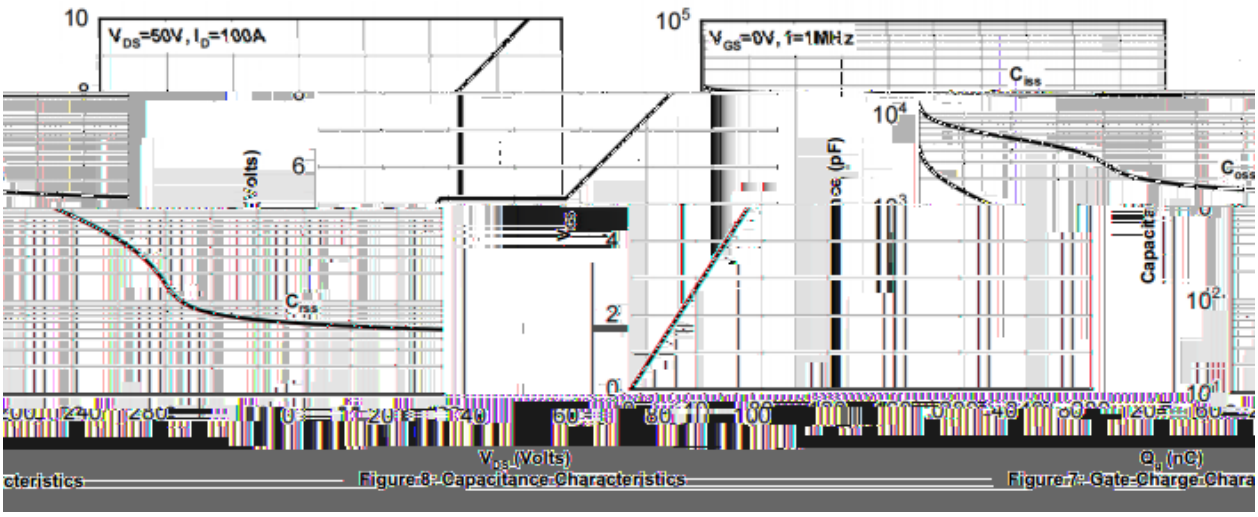
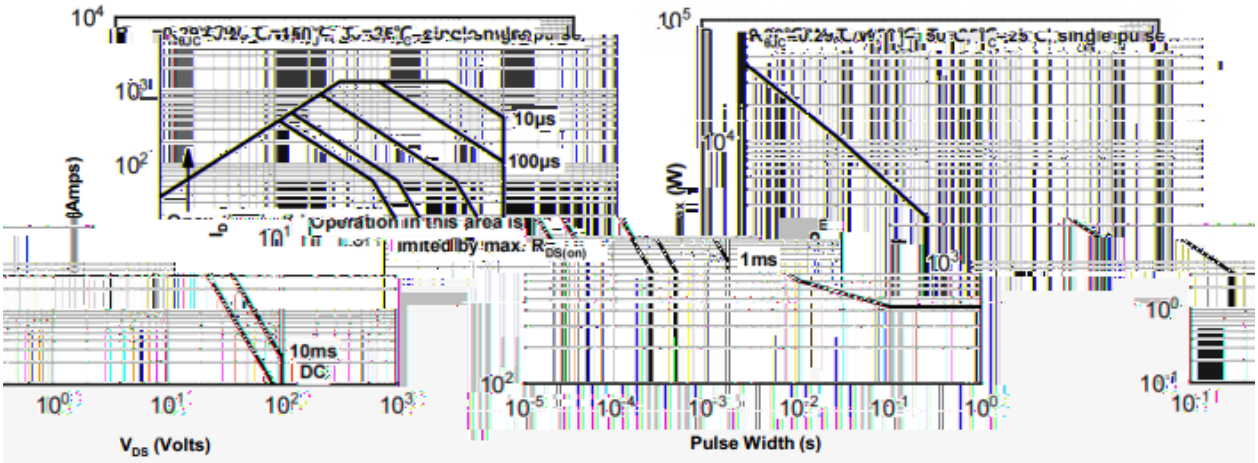


Figure 8: Capacitance Characteristics

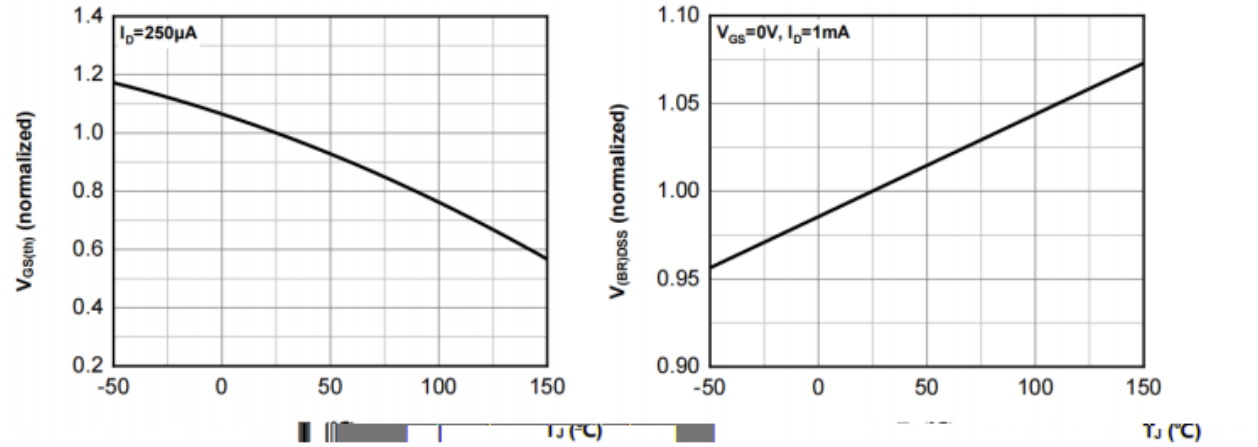
Figure 7: Gate Charge Chara



gure 9: Maximum Forward Biased Safe Operating Area

Figure 10: Single Pulse Power Rating Junction-to-Ambient

Fi

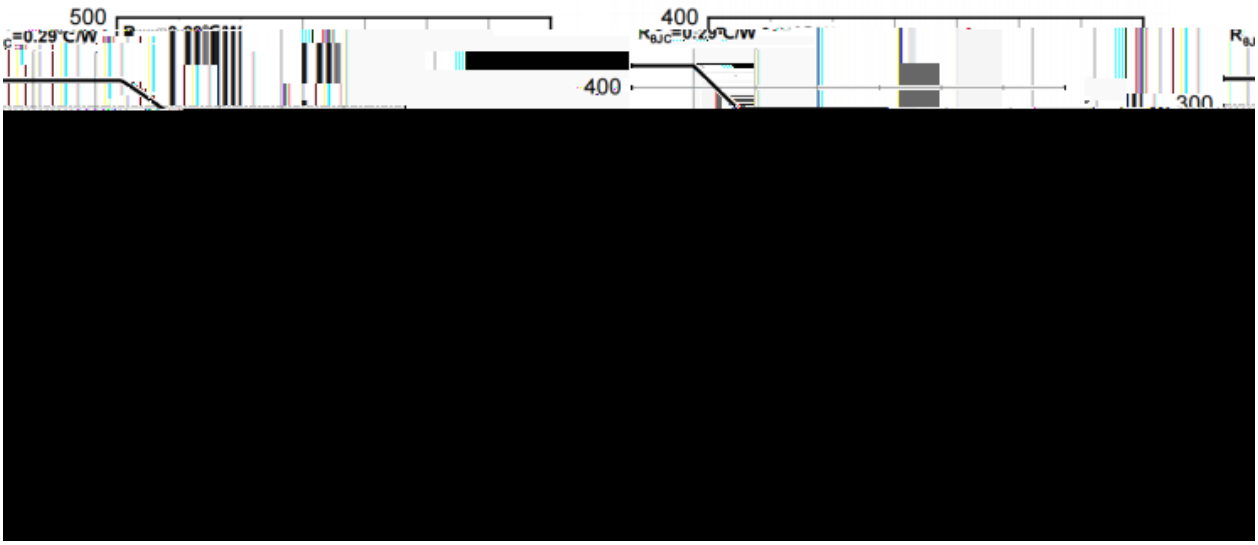


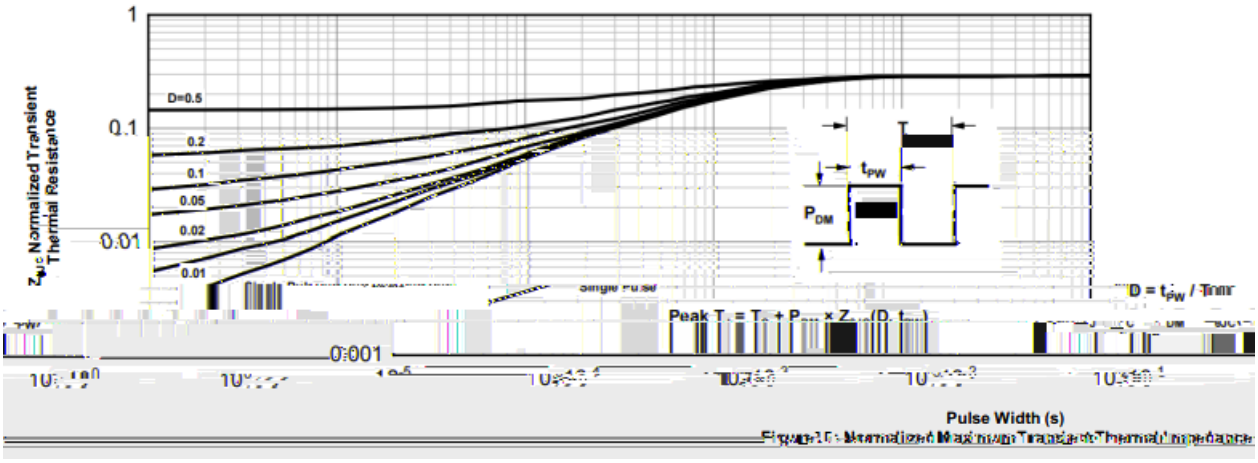
SS vs. Junction

Figure 11: Normalized VGS(th) vs. Junction Temperature

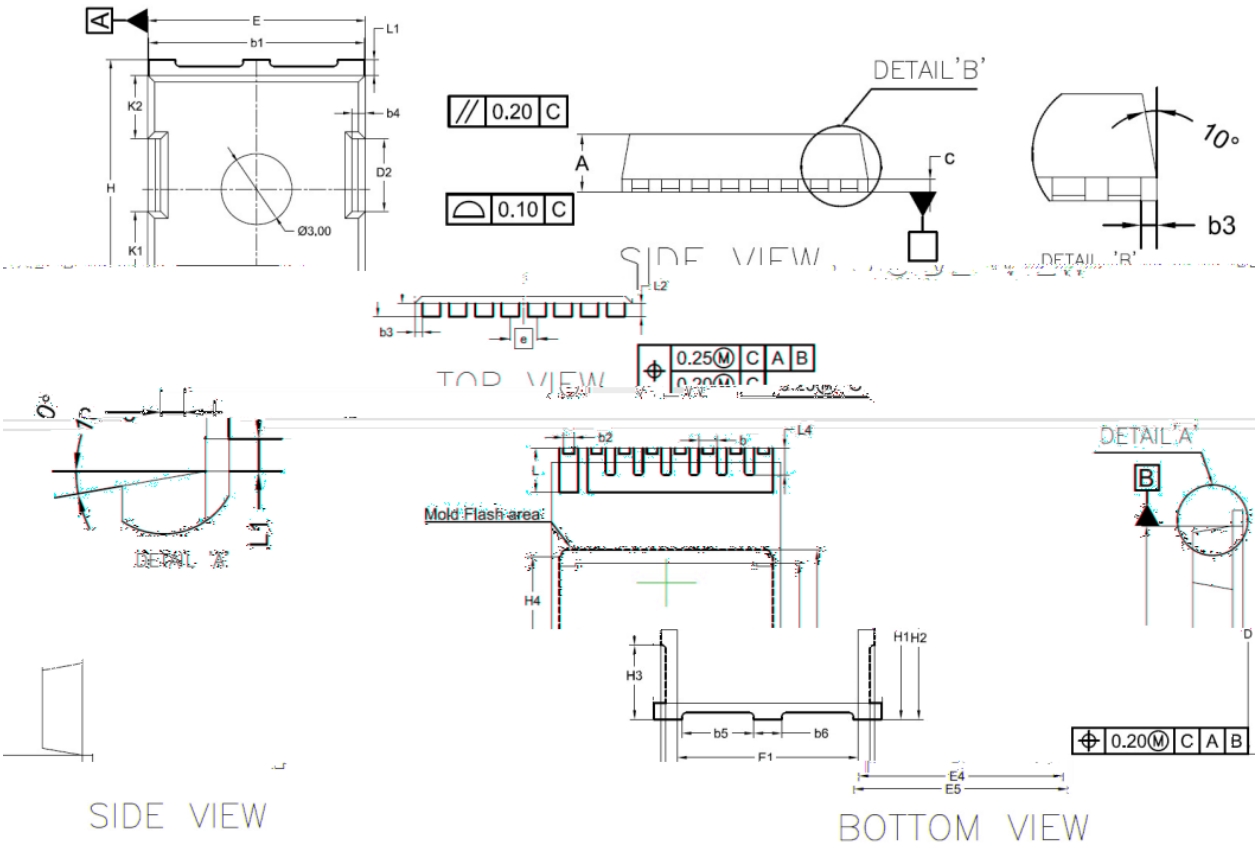
Figure 12: Normalized V(BR)D Temperature

/ Electrical Characteristic Curve



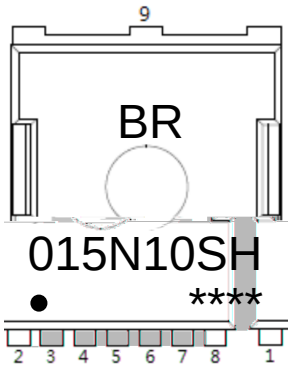


/ Package Dimensions



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.
A	2.200	2.300	2.400	b1	9.700	9.800	9.900
c	0.492	0.500	0.508	b1	0.420	0.460	0.500
D	10.280	10.380	10.480	b3		0.350	
E	9.800	9.900	10.000	b4		0.600	
e		1.20 BSC		b5		3.100	
H	11.580	11.680	11.780	b6		1.200	
H1	6.650	6.750	6.850	L	1.700	1.900	2.100
H2		7.300		L1		0.700	
H3		3.200		L2		0.600	
H4		3.800		L4	1.050	1.150	1.250
K1		4.180		L5	0.500	0.600	0.700
K2		2.900		E1		7.800	
D2		3.300		E4		8.800	
b	0.700	0.800	0.900	E5		9.200	

/ Marking Instructions



BR

015N10SH

****

Note

BR	Company Code
015N10SH	Product Type Code
****:	Lot No. Code, code change with Lot No

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

Note:

1	150	180	60	90sec;
2	245±5			5±0.5sec;
3		2	10	/sec.

1.Preheating:150~180 , Time:60~90sec.
2.Peak Temp.:245±5 , Duration:5±0.5sec.
3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5	10±1 sec.	Temp.:260±5	Time:10±1 sec

/ Packaging SPEC.

/ REEL

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