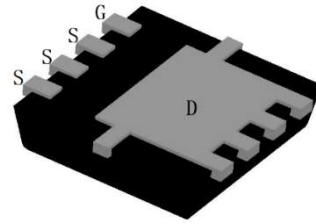
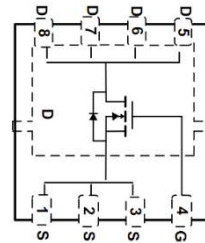


WNM3057
Single N-Channel, 30V, 75A, Power MOSFET
<http://www.omnivision-group.com/>

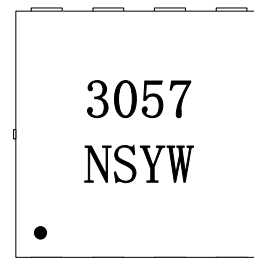
V_{DS} (V)	Max. $R_{DS(on)}$ (m Ω)
30	4.0 @ $V_{GS}=10V$
	6.0 @ $V_{GS}=4.5V$


Descriptions

The WNM3057 is N-Channel enhancement MOS Field Effect Transistor. Uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit. Standard Product WNM3057 is Pb-free.

PDFN3333-8L

Pin configuration (Top view)
Features

- Trench Technology
- Supper high density cell design
- Excellent ON resistance
- Extremely Low Threshold Voltage
- Small package PDFN3333-8L



3057 = Device Code
 NS = Special Code
 Y = Year
 W = Week(A~z)

Marking
Applications

- DC/DC converters
- Power supply converters circuit
- Load/Power Switching for portable device

Order information

Device	Package	Shipping
WNM3057-8/TR	PDFN3333-8L	2500/Tape&Reel

Absolute Maximum ratings

Parameter	Symbol	Maximum	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	75
		$T_C=100^\circ\text{C}$	46
Pulsed Drain Current ^c	I_{DM}	186	A
Continuous Drain Current ^d	I_{DSM}	$T_A=25^\circ\text{C}$	27
		$T_A=70^\circ\text{C}$	21
Avalanche Energy $L=0.3\text{mH}$	E_{AS}	66	mJ
Power Dissipation ^b	P_D	$T_C=25^\circ\text{C}$	39
		$T_C=100^\circ\text{C}$	16
Power Dissipation ^{a,d}	P_{DSM}	$T_A=25^\circ\text{C}$	5.2
		$T_A=70^\circ\text{C}$	3.3
Operating Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal resistance ratings

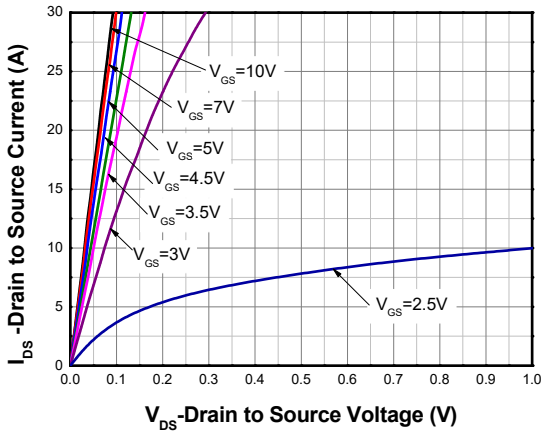
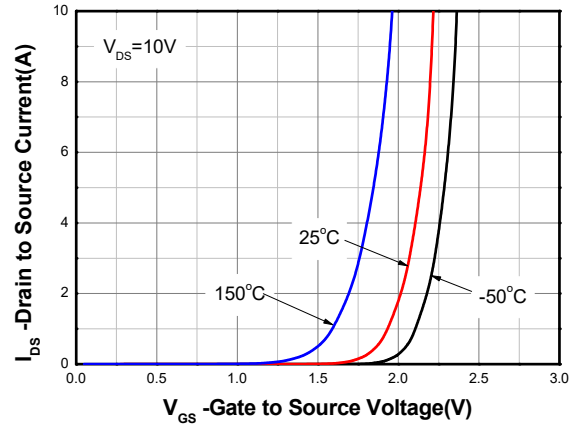
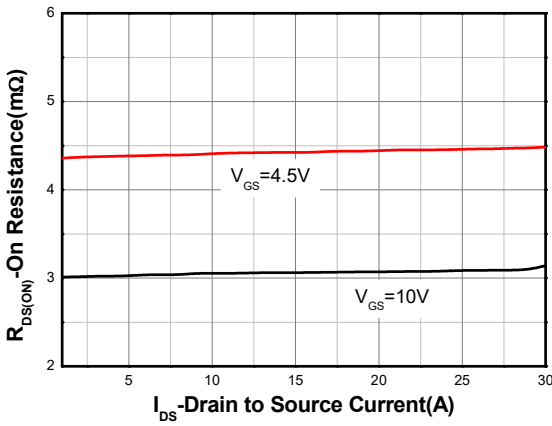
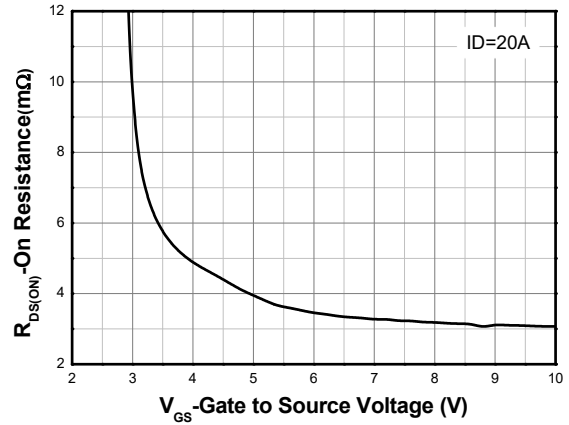
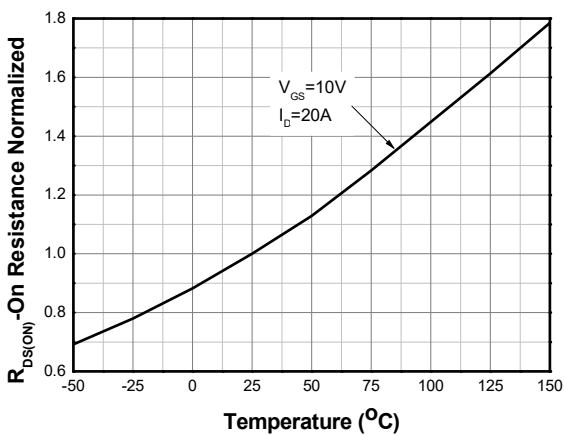
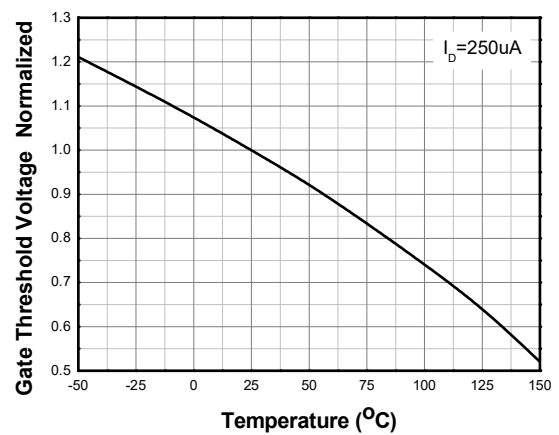
Single Operation					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient Thermal Resistance ^a	$R_{\theta JA}$	$t \leq 10\text{ s}$	20	24	$^\circ\text{C/W}$
		Steady State	46	55	
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	2.7	3.2		

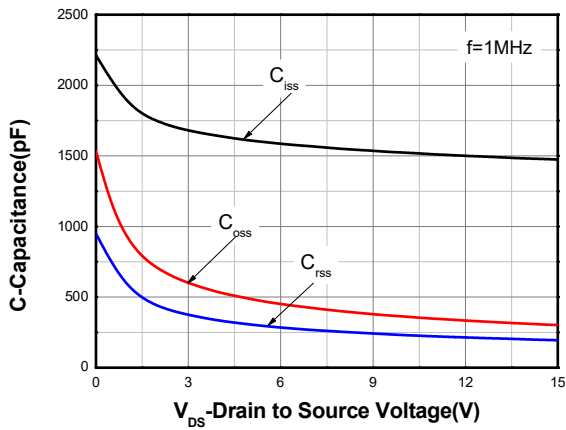
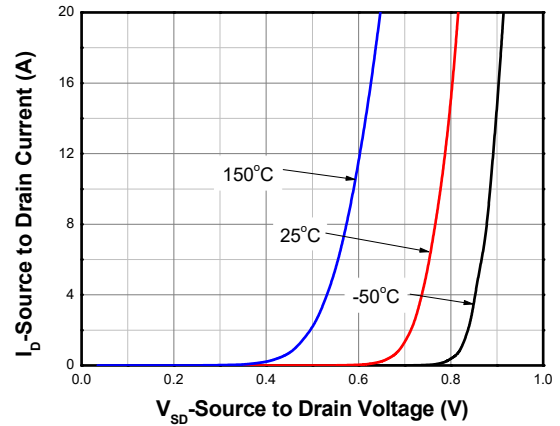
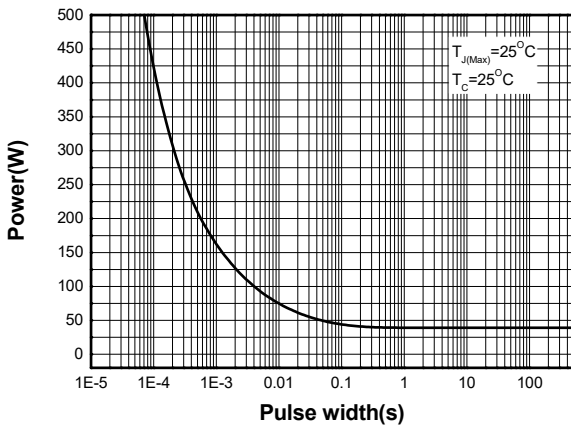
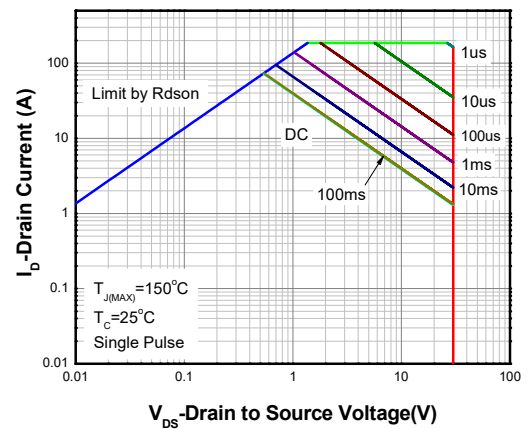
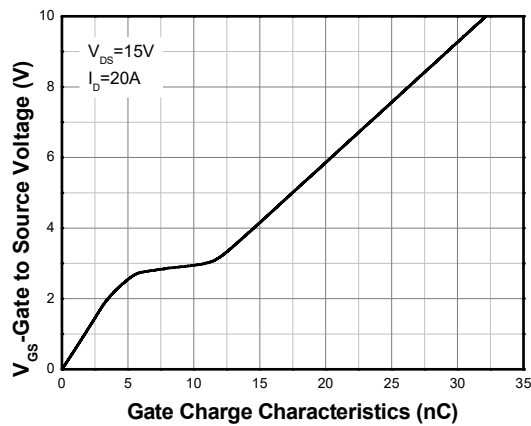
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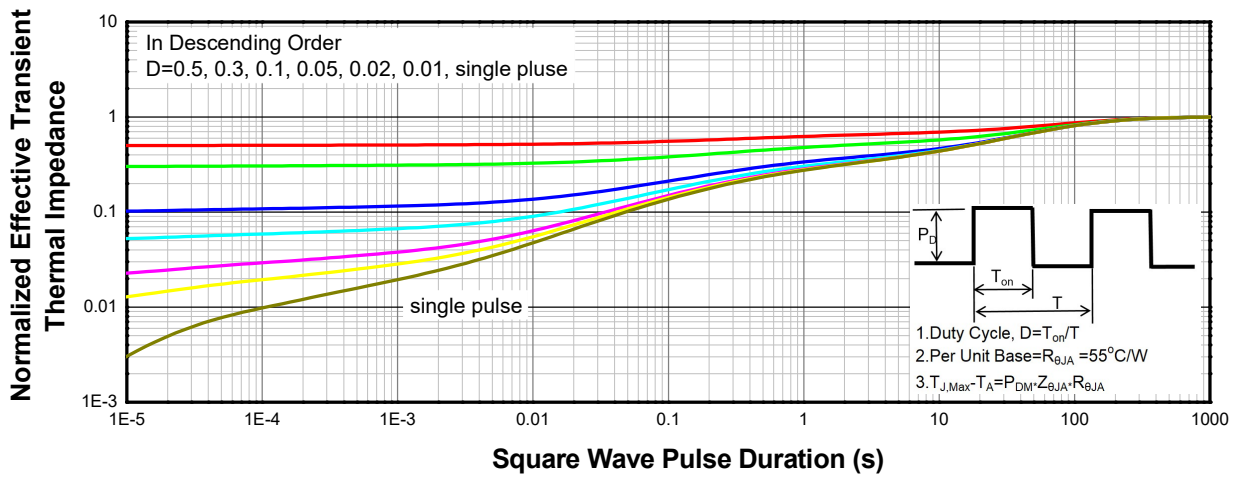
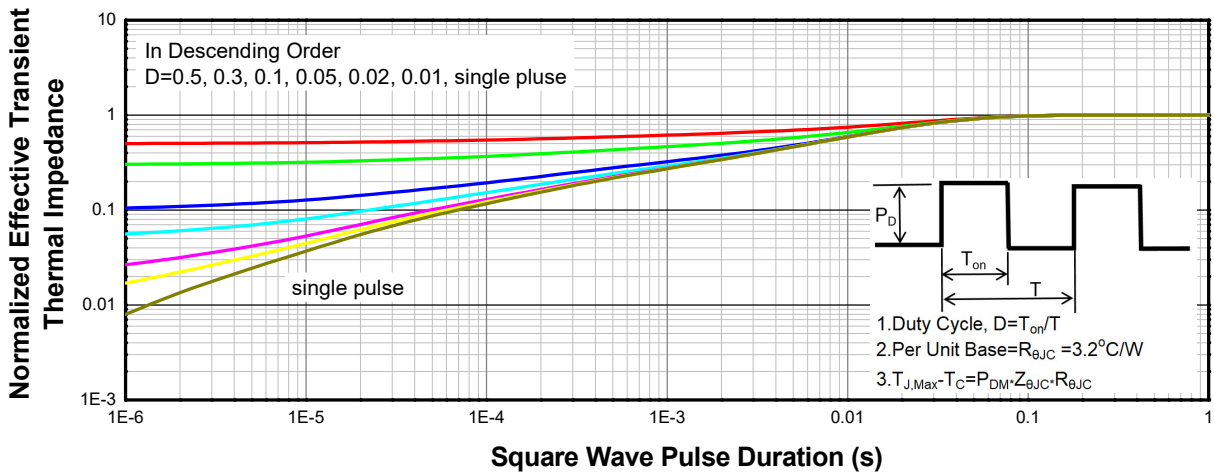
- a FR-4 board (38mm X 38mm X t1.6mm, 70um Copper) partially covered with copper (645mm² area).
- b The power dissipation P_D is based on $T_{J(MAX)}=150^\circ\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.
- c Repetitive rating, ~10us pulse width, duty cycle ~1%, keep initial $T_J = 25^\circ\text{C}$, the maximum allowed junction temperature of 150°C .
- d The power dissipation P_D is based on Junction-to-Ambient thermal resistance $R_{\theta JA}$ $t \leq 10\text{s}$ value and the $T_{J(MAX)}=150^\circ\text{C}$.
- e The static characteristics are obtained using ~380us pulses, duty cycle ~1%.

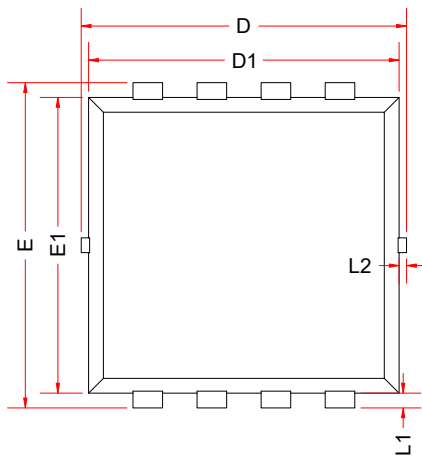
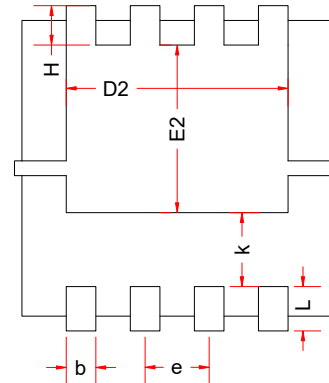
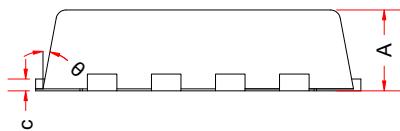
Electronics Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	uA
Gate-to-source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _D = 250uA	1.2	1.7	2.5	V
Drain-to-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		3.1	4.0	mΩ
		V _{GS} = 4.5V, I _D = 16A		4.4	6.0	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C _{ISS}	V _{GS} = 0 V, f = 1.0MHz, V _{DS} = 15 V		1474		pF
Output Capacitance	C _{OSS}			301		
Reverse Transfer Capacitance	C _{RSS}			195		
Gate Resistance	R _g	F=1.0MHz		2.2		Ω
Total Gate Charge	Q _{G(TOT)}	V _{GS} = 10 V, V _{DS} = 15 V, I _D = 20 A		32.5		nC
Threshold Gate Charge	Q _{G(TH)}			2.9		
Gate-to-Source Charge	Q _{GS}			5.5		
Gate-to-Drain Charge	Q _{GD}			5.3		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	td(ON)	V _{GS} = 10 V, V _{DS} = 15 V, I _D = 20 A, R _G = 6Ω		11.3		ns
Rise Time	tr			15.5		
Turn-Off Delay Time	td(OFF)			56.4		
Fall Time	tf			14.8		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1A		0.7	1.2	V

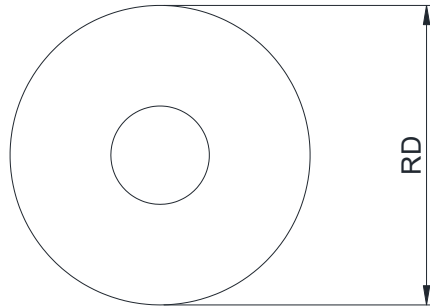
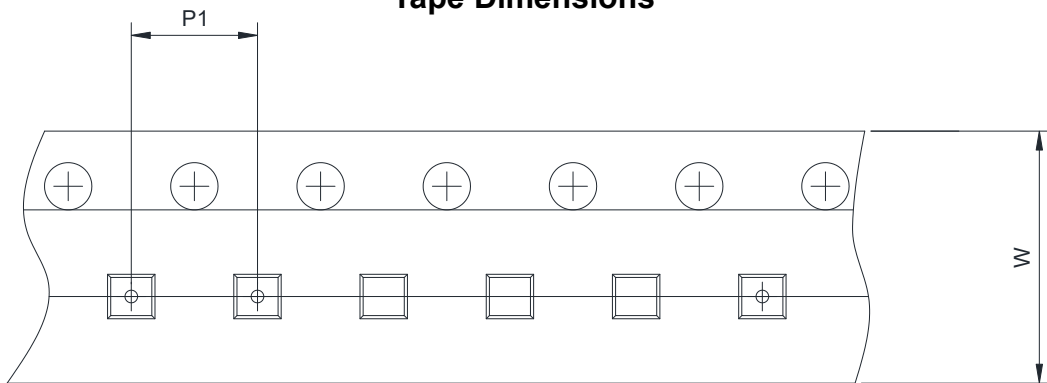
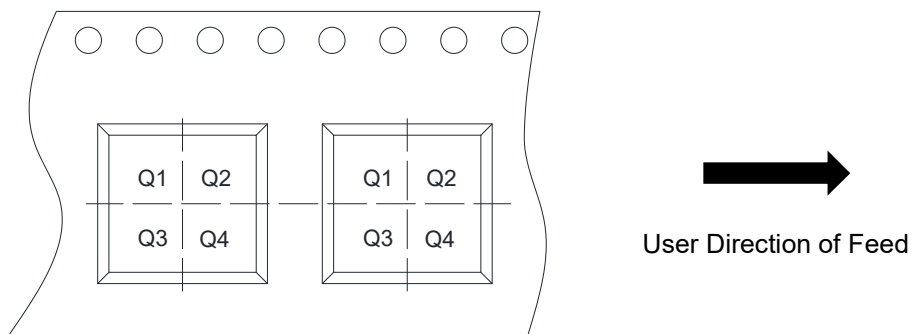
Typical Characteristics (Ta=25°C, unless otherwise noted)

Output Characteristics ^e

Transfer Characteristics ^e

On-Resistance vs. Drain Current ^e

On-Resistance vs. Gate to Source Voltage ^e

On-Resistance vs. Junction Temperature ^e

Threshold Voltage vs. Temperature


Capacitance

Body Diode Forward Voltage^e

Single pulse power

Safe operating power

Gate Charge Characteristics

Transient thermal response (Junction-to-Ambient)

Transient thermal response (Junction-to-Case)


PACKAGE OUTLINE DIMENSIONS
PDFN3333-8L

TOP VIEW

BOTTOM VIEW

SIDE VIEW

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.70	0.80	0.90
b	0.25	0.30	0.39
c	0.14	0.15	0.20
D	3.10	3.30	3.50
D1	3.05	3.15	3.25
D2	2.15	2.25	2.35
e	0.55	0.65	0.75
E	3.10	3.30	3.50
E1	2.90	3.00	3.10
E2	1.60	1.70	1.80
H	0.25	0.40	0.55
K	0.65	0.75	0.85
L	0.30	0.45	0.60
L1	0.05	0.15	0.25
L2	-	-	0.15
θ	8 °	10 °	12 °

TAPE AND REEL INFORMATION
Reel Dimensions

Tape Dimensions

Quadrant Assignments For PIN1 Orientation In Tape


RD	Reel Dimension	<input type="checkbox"/> 7inch	<input checked="" type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input type="checkbox"/> 8mm	<input checked="" type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input type="checkbox"/> 4mm <input checked="" type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input checked="" type="checkbox"/> Q1	<input type="checkbox"/> Q2 <input type="checkbox"/> Q3 <input type="checkbox"/> Q4

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