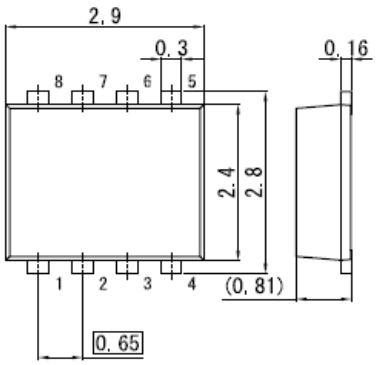
# FK8V03030L

## Silicon N-channel MOSFET

For lithium-ion secondary battery protecion circuit

Unit: mm




| | |
|---|---|
| 1. Source | 5. Drain |
| 2. Source | 6. Drain |
| 3. Source | 7. Drain |
| 4. Gate | 8. Drain |

| | |
|---|---|
| Panasonic | WMini8-F1 |
| JEITA | SC-115 |
| Code | — |

### ■ Features

- Low drain-source ON-state Resistance:RDS(on) typ. = 8 mΩ (VGS = 4.5 V)
- High-speed switching :Qg = 10.2 nC
- Halogen-free / RoHS compliant
  (EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

### ■ Marking Symbol: 3C

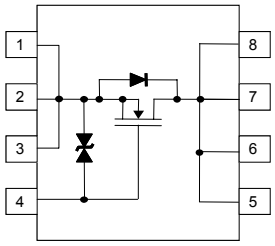
### ■ Packaging

FK8V03030L Embossed type (Thermo-compression sealing):
3 000 pcs / reel (standard)

### ■ Absolute Maximum Ratings Ta = 25 °C

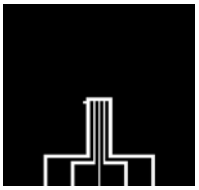
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Drain-source Voltage | VDS | 33 | V |
| Gate-source Voltage | VGS | ±20 | V |
| Drain Current (Steady State) *1 | ID | 12 | A |
| Drain Current (t = 10 s) *1 | | 14 | |
| Drain Current (Pulsed) *1 *2 | IDp | 48 | |
| Source Current (Pulsed) (Body Diode) *1 *2 | ISp (BD) | 12 | |
| Total Power Dissipation (Steady State) *1 | PD | 1 | W |
| Total Power Dissipation (t = 10 s) *1 | | 1.5 | |
| Channel Temperature | Tch | 150 | °C |
| Storage Temperature Range | Tstg | -55 to +150 | °C |

Note *1 Device mounted on a glass-epoxy board (See Figure 1)
*2 Pulse test: Ensure that the channel temperature does not exceed 150 °C.




Pin name

| | |
|---|---|
| 1. Source | 5. Drain |
| 2. Source | 6. Drain |
| 3. Source | 7. Drain |
| 4. Gate | 8. Drain |



FR-4 (Unit:mm)
25.4 × 25.4 × 0.8

(Figure 1) Glass-Epoxy Board

■ Electrical Characteristics Ta = 25 °C ± 3 °C

Static Characteristics

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-source Breakdown Voltage | VDSS | ID = 1 mA, VGS = 0 V | 33 | | | V |
| Zero Gate Voltage Drain Current | IDSS | VDS = 33 V, VGS = 0 V | | | 10 | μA |
| Gate-source Leakage Current | IGSS | VGS = ±16 V, VDS = 0 V | | | ±10 | μA |
| Gate-source Threshold Voltage | Vth | ID = 1.73 mA, VDS = 10 V | 1 | | 2.5 | V |
| Drain-source On-state Resistance *1 | RDS(on)1 | ID = 6 A, VGS = 10 V | | 5 | 7 | mΩ |
| | RDS(on)2 | ID = 6 A, VGS = 4.5 V | | 8 | 13 | |

Note *1 Pulse test: Ensure that the channel temperature does not exceed 150 °C.

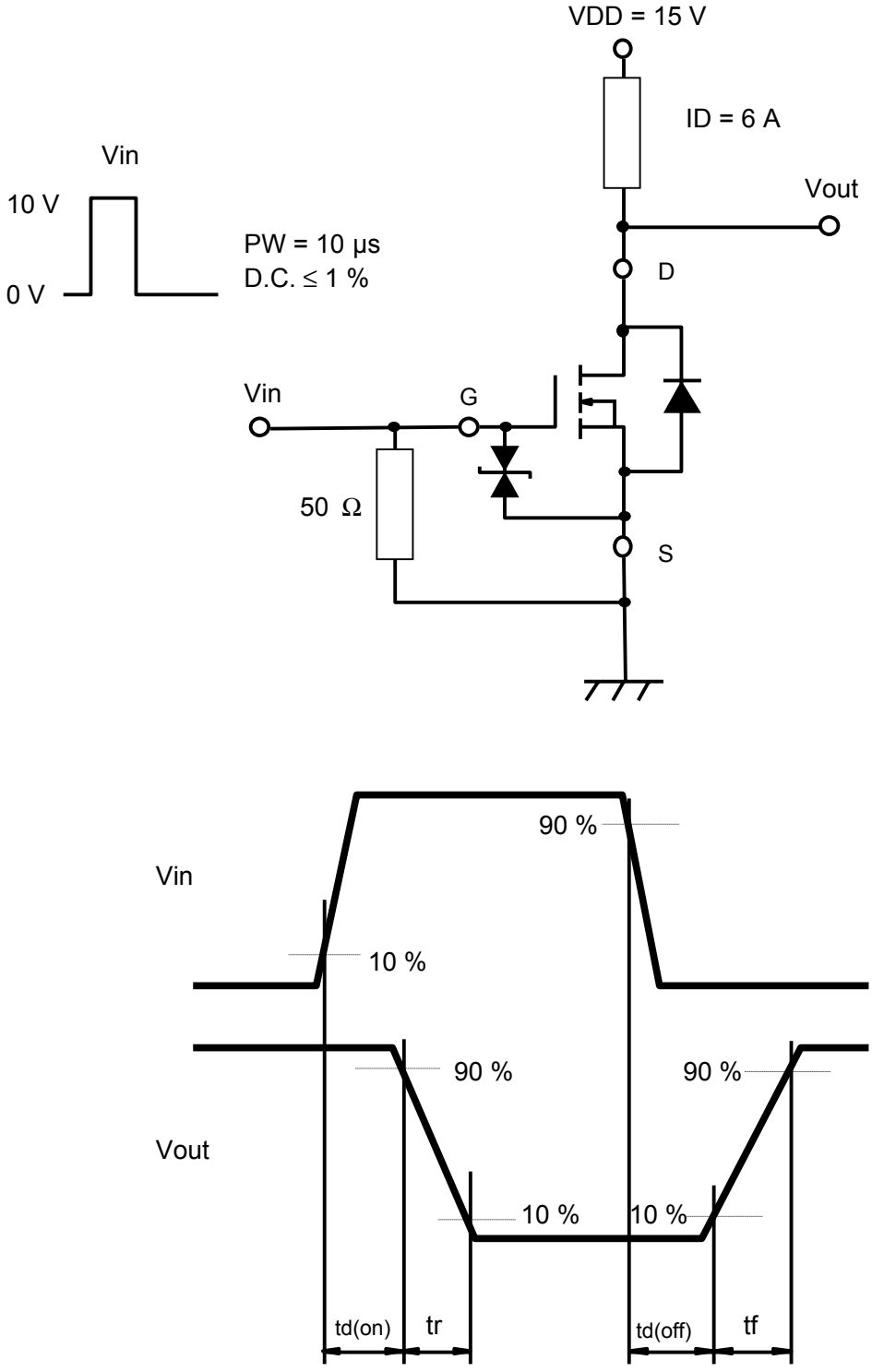
Dynamic Characteristics

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Input Capacitance | Ciss | VDS = 10 V, VGS = 0 V, f = 1 MHz | | 1100 | | pF |
| Output Capacitance | Coss | | | 250 | | |
| Reverse Transfer Capacitance | Crss | | | 150 | | |
| Turn-On Delay Time | td(on) | VDD = 15 V, VGS = 0 to 10 V | | 12 | | ns |
| Rise Time | tr | ID = 6 A (see Figure 2) | | 7 | | |
| Turn-Off Delay Time | td(off) | VDD = 15 V, VGS = 10 to 0 V | | 61 | | |
| Fall Time | tf | ID = 6 A (see Figure 2) | | 38 | | |
| Total Gate Charge | Qg | VDD = 15 V, VGS = 0 to 4.5 V, ID = 12 A | | 10.2 | | nC |
| Gate-source Charge | Qgs | | | 3.1 | | |
| Gate-drain Charge | Qgd | | | 4.7 | | |

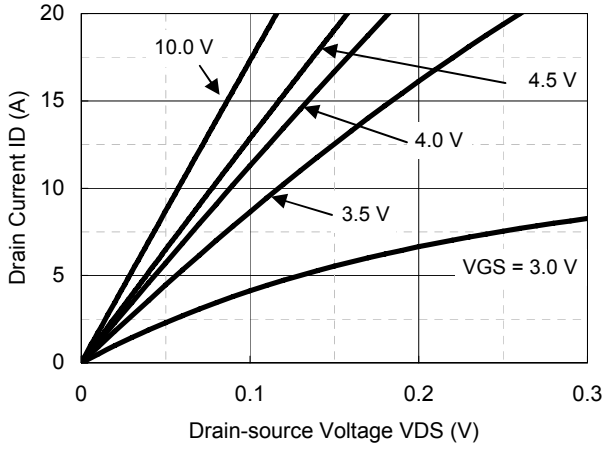
Body Diode Characteristic

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Diode Forward Voltage *1 | VSD | IS = 6 A, VGS = 0 V | | 0.8 | 1.2 | V |

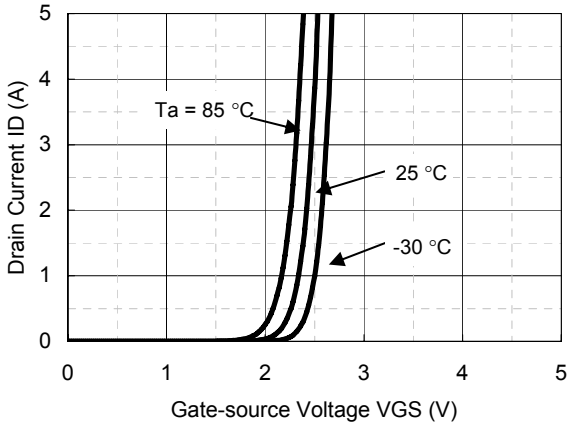
Note *1 Pulse test: Ensure that the channel temperature does not exceed 150 °C.



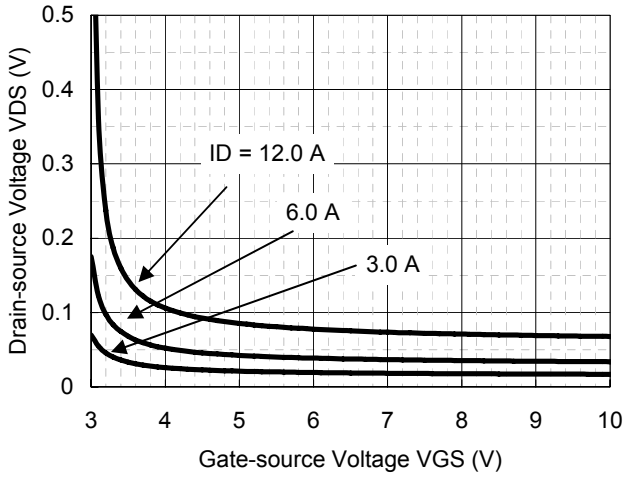

(Figure 2) Measuremet circuit for Turn-On Delay Time/Rise Time/Turn-Off Delay Time/Fall Time



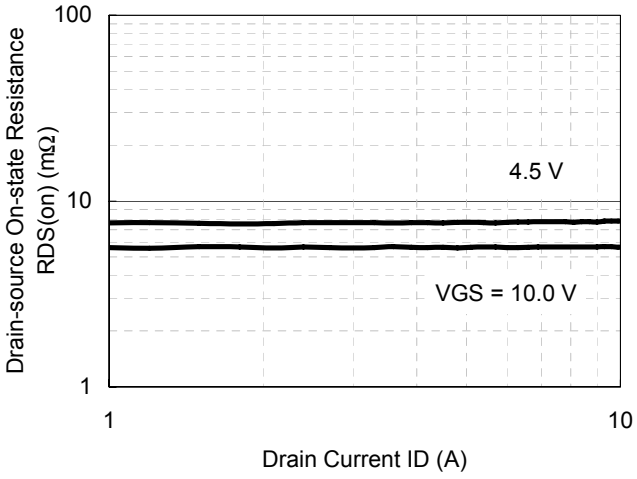

ID - VDS



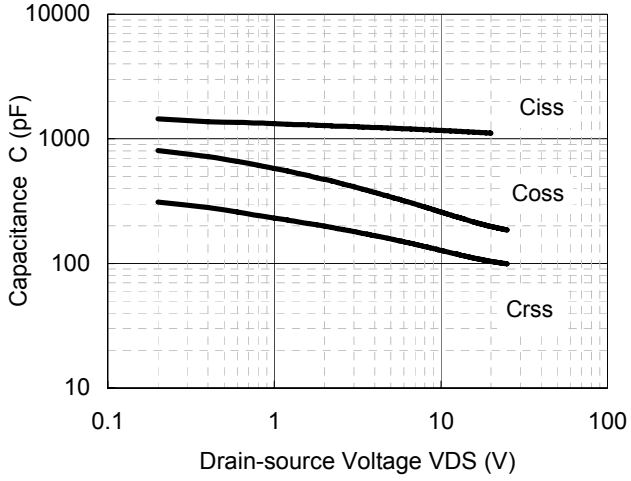

ID - VGS



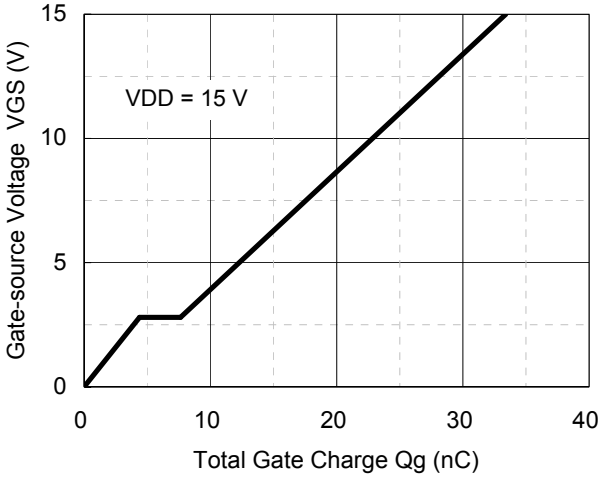

VDS - VGS



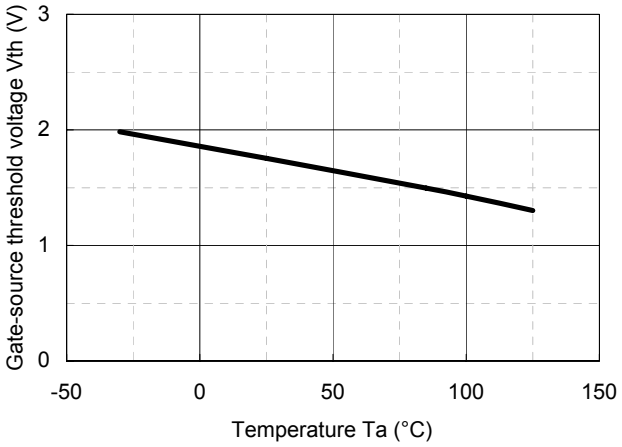

RDS(on) - ID



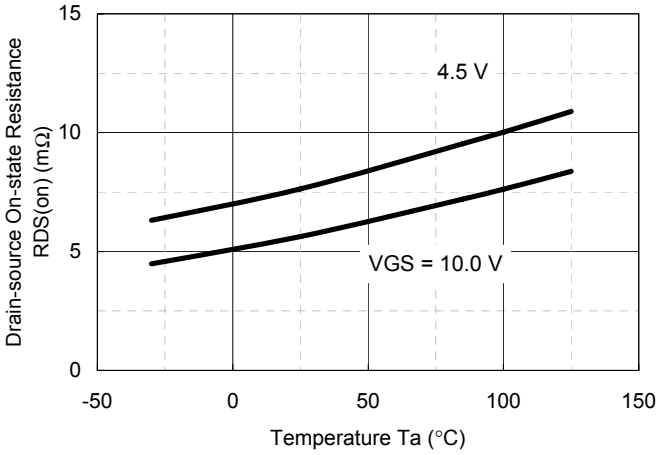

Capacitance - VDS



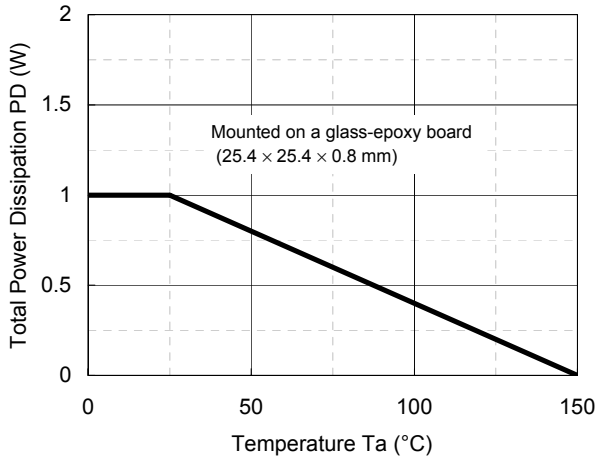

Dynamic Input/Output Characteristics



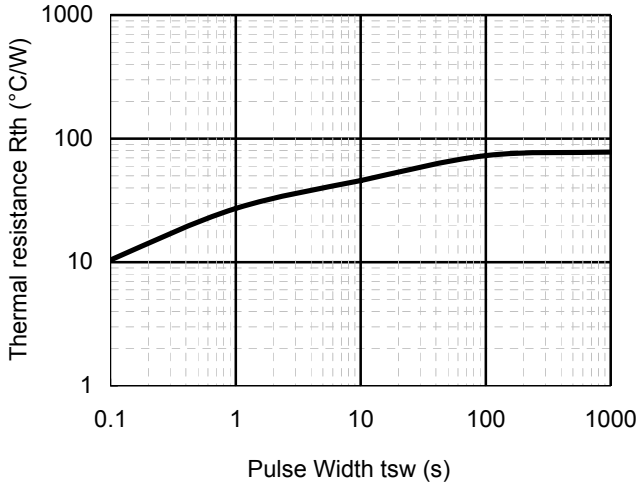

Vth - Ta



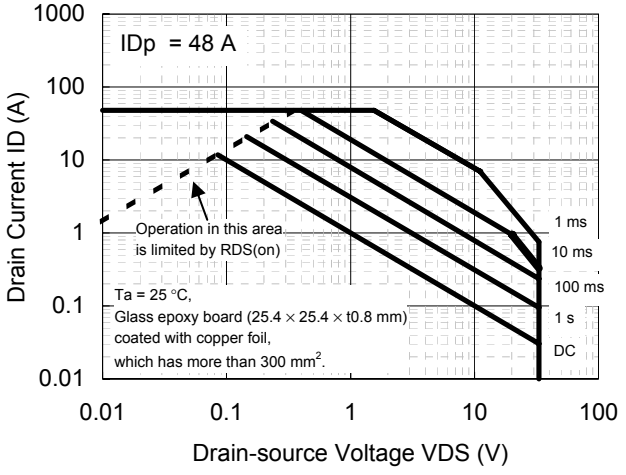

RDS(on) - Ta




PD - Ta



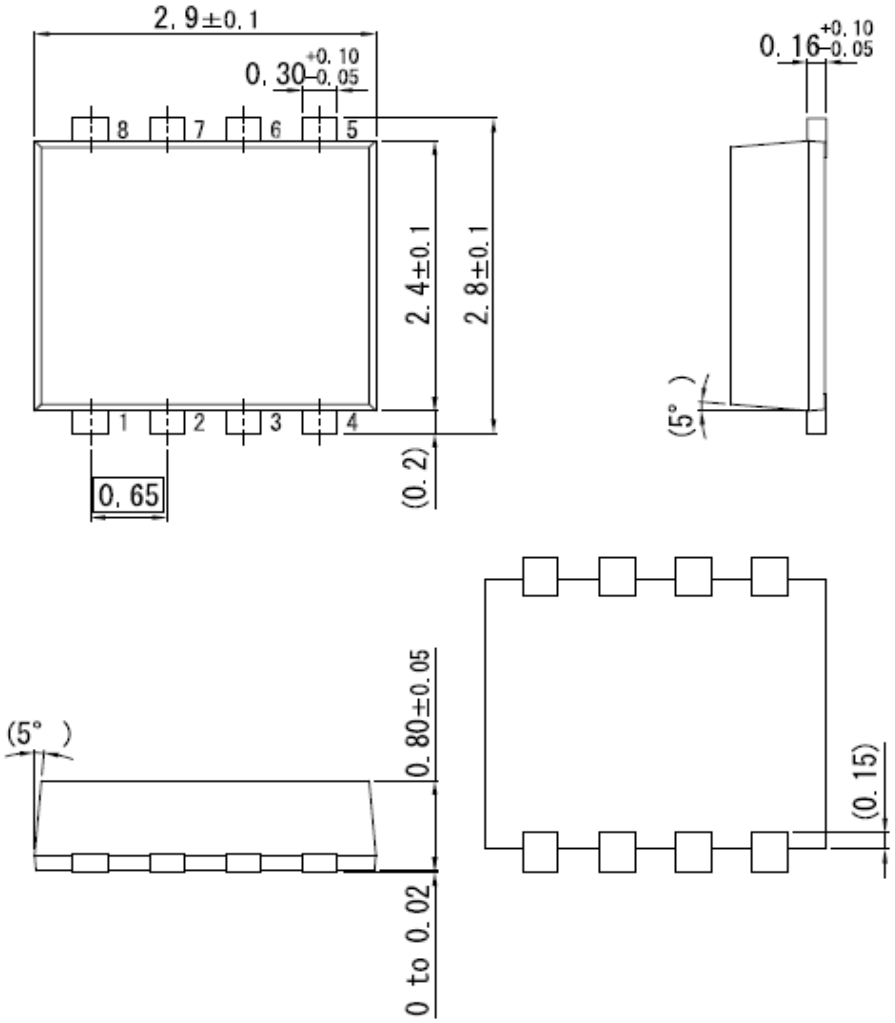

Rth - tsw



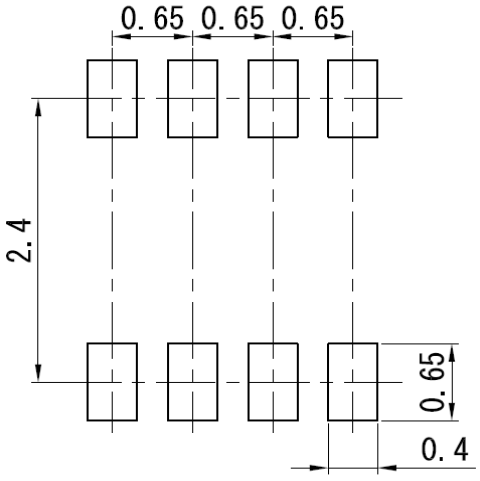

Safe Operating Area

# WMini8-F1

Unit: mm




■ Land Pattern (Reference) (Unit: mm)



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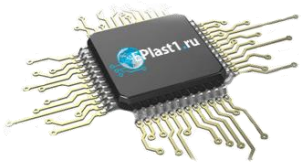


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