

Transistors

2.5V Drive Nch+Pch MOSFET

US6M2

●Structure

Silicon N-channel MOSFET /
Silicon P-channel MOSFET

●Features

- 1) Nch MOSFET and Pch MOSFET are put in TUMT6 package.
- 2) High-speed switching, low On-resistance.
- 3) Low voltage drive (2.5V drive).
- 4) Built-in G-S Protection Diode.

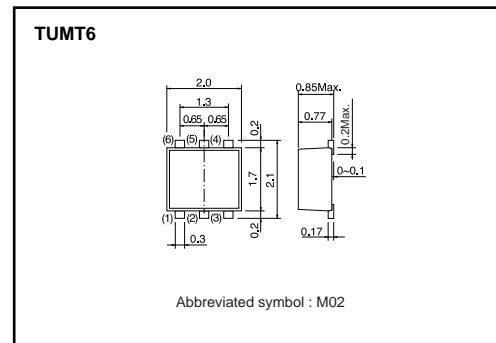
●Applications

Switching

●Packaging specifications

| Type | Package | Taping |
|-------|------------------------------|--------|
| | Code | TR |
| | Basic ordering unit (pieces) | 3000 |
| US6M2 | | ○ |

●Dimensions (Unit : mm)

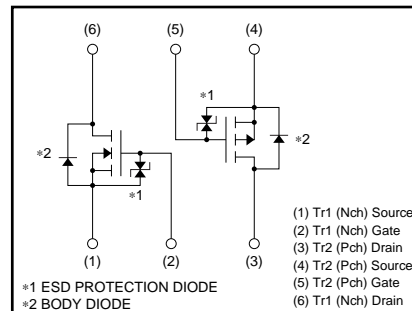


●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | | Unit |
|-----------------------------|-------------------|--------------------|----------------|-------------|
| | | Tr1 : Nchannel | Tr2 : Pchannel | |
| Drain-source voltage | V _{DSS} | 30 | -20 | V |
| Gate-source voltage | V _{GSS} | 12 | -12 | V |
| Drain current | Continuous | I _D | ±1.5 | A |
| | Pulsed | I _{DP} *1 | ±6 | A |
| Source current (Body diode) | Continuous | I _S | 0.6 | A |
| | Pulsed | I _{SP} *1 | 6 | A |
| Total power dissipation | P _D *2 | 1.0 | | W / TOTAL |
| | | 0.7 | | W / ELEMENT |
| Channel temperature | T _{ch} | 150 | | °C |
| Storage temperature | T _{stg} | -55 to +150 | | °C |

*1 Pw≤10μs, Duty cycle≤1%
*2 Mounted on a ceramic board.

●Inner circuit



●Thermal resistance

| Parameter | Symbol | Limits | Unit |
|--------------------|-------------------------|--------|----------------|
| Channel to ambient | R _{th(ch-a)} * | 125 | °C/W / TOTAL |
| | | 179 | °C/W / ELEMENT |

* Mounted on a ceramic board

Transistors

N-ch

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|-----------------------|------|------|------|------|---|
| Gate-source leakage | I _{GSS} | – | – | 10 | μA | V _{GS} =12V, V _{DS} =0V |
| Drain-source breakdown voltage | V _{(BR) DSS} | 30 | – | – | V | I _D = 1mA, V _{GS} =0V |
| Zero gate voltage drain current | I _{DSS} | – | – | 1 | μA | V _{DS} = 30V, V _{GS} =0V |
| Gate threshold voltage | V _{GS(th)} | 0.5 | – | 1.5 | V | V _{DS} = 10V, I _D = 1mA |
| Static drain-source on-state resistance | R _{DS(on)} * | – | 170 | 240 | mΩ | I _D = 1.5A, V _{GS} = 4.5V |
| | | – | 180 | 250 | mΩ | I _D = 1.5A, V _{GS} = 4V |
| | | – | 240 | 340 | mΩ | I _D = 1.5A, V _{GS} = 2.5V |
| Forward transfer admittance | Y _{fs} * | 1.5 | – | – | S | V _{DS} = 10V, I _D = 1.5A |
| Input capacitance | C _{iss} | – | 80 | – | pF | V _{DS} = 10V |
| Output capacitance | C _{oss} | – | 13 | – | pF | V _{GS} =0V |
| Reverse transfer capacitance | C _{rss} | – | 12 | – | pF | f=1MHz |
| Turn-on delay time | t _{d(on)} * | – | 7 | – | ns | V _{DD} ≐ 15V |
| Rise time | t _r * | – | 9 | – | ns | I _D = 0.75A |
| Turn-off delay time | t _{d(off)} * | – | 15 | – | ns | V _{GS} = 4.5V |
| Fall time | t _f * | – | 6 | – | ns | R _L = 20Ω |
| Total gate charge | Q _g * | – | 1.6 | 2.2 | nC | R _G =10Ω |
| Gate-source charge | Q _{gs} * | – | 0.5 | – | nC | V _{DD} ≐ 15V, V _{GS} = 4.5V |
| Gate-drain charge | Q _{gd} * | – | 0.3 | – | nC | I _D = 1.5A |
| | | | | | | R _L = 10Ω, R _G = 10Ω |

*Pulsed

●Body diode characteristics (Source-drain) (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-----------------|-----------------|------|------|------|------|--|
| Forward voltage | V _{SD} | – | – | 1.2 | V | I _S = 0.6A, V _{GS} =0V |

Transistors

P-ch

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|-----------------------|------|------|------|------|--|
| Gate-source leakage | I _{GSS} | – | – | 10 | μA | V _{GS} = –12V, V _{DS} =0V |
| Drain-source breakdown voltage | V _{(BR) DSS} | –20 | – | – | V | I _D = –1mA, V _{GS} =0V |
| Zero gate voltage drain current | I _{DSS} | – | – | –1 | μA | V _{DS} = –20V, V _{GS} =0V |
| Gate threshold voltage | V _{GS(th)} | –0.7 | – | –2.0 | V | V _{DS} = –10V, I _D = –1mA |
| Static drain-source on-state resistance | R _{DS(on)} * | – | 280 | 390 | mΩ | I _D = –1A, V _{GS} = –4.5V |
| | | – | 310 | 430 | mΩ | I _D = –1A, V _{GS} = –4V |
| | | – | 570 | 800 | mΩ | I _D = –0.5A, V _{GS} = –2.5V |
| Forward transfer admittance | Y _{fs} * | 0.7 | – | – | S | V _{DS} = –10V, I _D = –0.5A |
| Input capacitance | C _{iss} | – | 150 | – | pF | V _{DS} = –10V |
| Output capacitance | C _{oss} | – | 20 | – | pF | V _{GS} = 0V |
| Reverse transfer capacitance | C _{rss} | – | 20 | – | pF | f=1MHz |
| Turn-on delay time | t _{d(on)} * | – | 9 | – | ns | V _{DD} ≐ –15V I _D = –0.5A |
| Rise time | t _r * | – | 8 | – | ns | V _{GS} = –4.5V |
| Turn-off delay time | t _{d(off)} * | – | 25 | – | ns | R _L = 30Ω |
| Fall time | t _f * | – | 10 | – | ns | R _G = 10Ω |
| Total gate charge | Q _g * | – | 2.1 | – | nC | V _{DD} ≐ –15V, V _{GS} = –4.5V |
| Gate-source charge | Q _{gs} * | – | 0.5 | – | nC | I _D = –1A |
| Gate-drain charge | Q _{gd} * | – | 0.5 | – | nC | R _L = 15Ω, R _G = 10Ω |

*Pulsed

●Body diode characteristics (Source-drain) (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-----------------|-----------------|------|------|------|------|---|
| Forward voltage | V _{SD} | – | – | –1.2 | V | I _S = –0.4A, V _{GS} =0V |

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US6M2 - Web Page

[Distribution Inventory](#)

| | |
|-----------------------------|---------|
| Part Number | US6M2 |
| Package | TUMT6 |
| Unit Quantity | 3000 |
| Minimum Package Quantity | 3000 |
| Packing Type | Taping |
| Constitution Materials List | inquiry |
| RoHS | Yes |

Mouser Electronics

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Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru