

Transistors

2.5V Drive Nch+Pch MOSFET

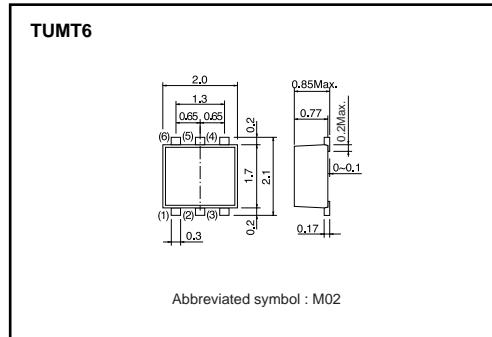
US6M2

●Structure

Silicon N-channel MOSFET /
Silicon P-channel MOSFET

●Features

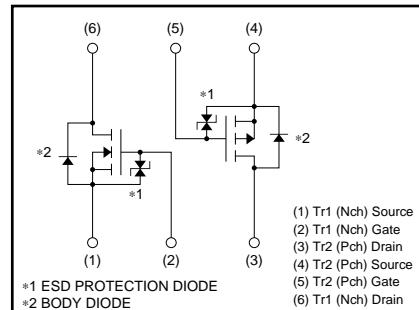
- 1) Nch MOSFET and Pch MOSFET are put in TUMT6 package.
- 2) High-speed switching, low On-resistance.
- 3) Low voltage drive (2.5V drive).
- 4) Built-in G-S Protection Diode.

●Dimensions (Unit : mm)**●Applications**

Switching

●Packaging specifications

Type	Package	Taping
	Code	TR
US6M2		○

●Inner circuit**●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.

●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
Rise time	t _r *	—	8	—	ns	I _D = -0.5A
Turn-off delay time	t _{d (off) *}	—	25	—	ns	V _{GS} = -4.5V
Fall time	t _f *	—	10	—	ns	R _L = 30Ω
Total gate charge	Q _g *	—	2.1	—	nC	R _G = 10Ω
Gate-source charge	Q _{gs} *	—	0.5	—	nC	V _{DD} = -15V, V _{GS} = -4.5V
Gate-drain charge	Q _{gd} *	—	0.5	—	nC	I _D = -1A
						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

Appendix

Notes

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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

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

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[US6M2GTR](#)

ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

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