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.

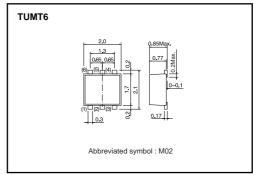
Applications

Switching

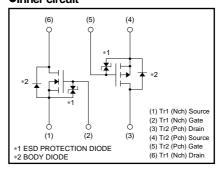
Packaging specifications

	Package	Taping		
Туре	Code	TR		
	Basic ordering unit (pieces)	3000		
US6M2		0		

●Dimensions (Unit:mm)



●Inner circuit



● Absolute maximum ratings (Ta=25°C)

Parameter		0	Lin	1.121	
		Symbol	Tr1 : Nchannel	Tr2 : Pchannel	Unit
Drain-source voltage		Voss	30	-20	V
Gate-source voltage		Vgss	12	-12	V
Drain current	Continuous	ID	±1.5	±1	Α
Diam current	Pulsed	I _{DP} *1	±6	±4	Α
Source current	Continuous	Is	0.6	-0.4	Α
(Body diode)	Pulsed	I _{SP} *1	6	-4	Α
Total power dissipation		Pn*2	1.	W / TOTAL	
		PD -	0	W / ELEMENT	
Channel temperature		Tch	150		°C
Storage temperature		Tstg	−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	Rth(ch-a)*	125	°C/W / TOTAL
Charmer to ambient	Kui(Cii-a)	179	°C/W / ELEMENT

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^{*} Mounted on a ceramic board

N-ch

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	_	10	μΑ	Vgs=12V, Vps=0V
Drain-source breakdown voltage	V _{(BR) DSS}	30	_	_	V	I _D = 1mA, V _{GS} =0V
Zero gate voltage drain current	IDSS	-	_	1	μΑ	V _{DS} = 30V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	0.5	_	1.5	V	V _{DS} = 10V, I _D = 1mA
		_	170	240	mΩ	I _D = 1.5A, V _{GS} = 4.5V
Static drain-source on-state resistance	R _{DS (on)} *	-	180	250	mΩ	I _D = 1.5A, V _{GS} = 4V
resistance		-	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	Ciss	-	80	_	pF	V _{DS} = 10V
Output capacitance	Coss	_	13	_	pF	V _G s=0V
Reverse transfer capacitance	Crss	_	12	_	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	_	7	_	ns	V _{DD} ≒ 15V
Rise time	tr *	_	9	_	ns	ID= 0.75A
Turn-off delay time	t _{d (off)} *	_	15	_	ns	V _{GS} = 4.5V R _L = 20Ω
Fall time	t _f *	_	6	_	ns	R _G =10Ω
Total gate charge	Qg *	_	1.6	2.2	nC	V _{DD} ≒15V, V _{GS} =4.5V
Gate-source charge	Q _{gs} *	_	0.5	-	nC	I _D = 1.5A
Gate-drain charge	Q _{gd} *	_	0.3	_	nC	$R_L=10\Omega$, $R_G=10\Omega$

^{*}Pulsed

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward voltage	Vsd	-	_	1.2	V	I _S = 0.6A, V _{GS} =0V

P-ch

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	_	10	μΑ	Vgs= -12V, Vps=0V
Drain-source breakdown voltage	V _{(BR) DSS}	-20	_	_	V	I _D = -1mA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}	_	_	-1	μΑ	V _{DS} = -20V, V _{GS} =0V
Gate threshold voltage	V _{GS (th)}	-0.7	_	-2.0	٧	$V_{DS} = -10V, I_{D} = -1mA$
		_	280	390	mΩ	I _D = -1A, V _G S= -4.5V
Static drain-source on-state resistance	R _{DS (on)} *	-	310	430	mΩ	I _D = -1A, V _G S= -4V
resistance		-	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	Ciss	-	150	_	pF	V _{DS} = -10V
Output capacitance	Coss	_	20	_	pF	Vgs= 0V
Reverse transfer capacitance	Crss	_	20	_	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	_	9	_	ns	V _{DD} ≒ −15V
Rise time	tr *	_	8	_	ns	ID= -0.5A
Turn-off delay time	t _{d (off)} *	_	25	_	ns	V _{GS} = -4.5V R _L = 30Ω
Fall time	t _f *	_	10	_	ns	R _G = 10Ω
Total gate charge	Qg *	_	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	$R_L=15\Omega$, $R_G=10\Omega$

^{*}Pulsed

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Forward voltage	Vsp	-	-	-1.2	V	I _S = -0.4A, V _{GS} =0V

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