4V Drive Nch+Nch MOSFET **US6K2**

●Structure

Silicon N-channel MOSFET

● Features

- 1) Two Nch MOSFETs are put in TUMT6 package.
- 2) High-speed switching, Low On-resistance.
- 3) 4V drive.

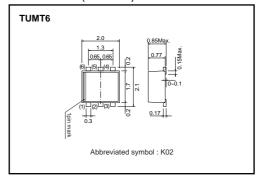
Applications

Switching

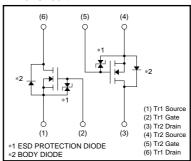
Packaging specifications

	Package	Taping
Type	Code	TR
	Basic ordering unit (pieces)	3000
US6K2		0

●Dimensions (Unit:mm)



•Inner circuit



● Absolute maximum ratings (Ta=25°C)

<It is the same ratings for the Tr1 and Tr2>

Parameter		Symbol	Limits	Unit	
Drain-source voltage		V_{DSS}	30	V	
Gate-source voltage		V _{GSS}	20	V	
Drain current	Continuous	lσ	±1.4	Α	
Drain current	Pulsed	I _{DP} *1	±5.6	Α	
Source current	Continuous	Is	0.6	Α	
(Body diode)	Pulsed	I _{SP} *1	5.6	Α	
Total power dissipation		Pp *2	1.0	W / TOTAL	
		ГD	0.7	W / ELEMENT	
Channel temperature		Tch	150	°C	
Range of 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	Kill(Cli-a)	179	°C/W / ELEMENT

^{*} Mounted on a ceramic board

●Electrical characteristics (Ta=25°C)

<It is the same characteristics for the Tr1 and Tr2>

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Gate-source leakage	Igss	-	-	10	μΑ	Vgs=20V, Vps=0V
Drain-source breakdown voltage	V _{(BR) DSS}	30	-	_	٧	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)}	1.0	_	2.5	٧	V _{DS} = 10V, I _D = 1mA
Static drain-source on-state resistance	R _{DS (on)} *	_	170	240	$m\Omega$	I _D = 1.4A, V _{GS} = 10V
		_	250	350	$m\Omega$	I _D = 1.4A, V _{GS} = 4.5V
		_	270	380	$m\Omega$	I _D = 1.4A, V _{GS} = 4V
Forward transfer admittance	Y _{fs} *	1	_	_	S	V _{DS} = 10V, I _D = 1.4A
Input capacitance	Ciss	_	70	_	pF	V _{DS} = 10V
Output capacitance	Coss	_	15	_	pF	Vgs=0V
Reverse transfer capacitance	Crss	_	12	_	pF	f=1MHz
Turn-on delay time	t _{d (on)} *	_	6	_	ns	V _{DD} ≒ 15V
Rise time	tr *	_	6	_	ns	ID= 0.7A
Turn-off delay time	t _{d (off)} *	_	13	_	ns	V _{GS} = 10V R _L = 21Ω
Fall time	t _f *	-	8	_	ns	R _G =10Ω
Total gate charge	Qg *	_	1.4	2.0	nC	V _{DD} ≒15V, V _{GS} =5V
Gate-source charge	Q _{gs} *	_	0.6	_	nC	I _D = 1.4A
Gate-drain charge	Q _{gd} *	_	0.3	_	nC	$R_L=11\Omega$, $R_G=10\Omega$

^{*}Pulsed

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

<It is the same characteristics for the Tr1 and Tr2>

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

•Electrical characteristics curves

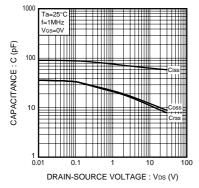


Fig.1 Typical Capacitance vs. Drain-Source Voltage

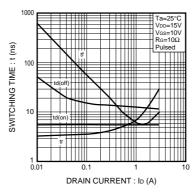


Fig.2 Switching Characteristics

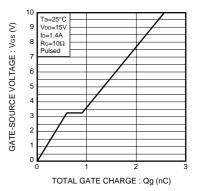


Fig.3 Dynamic Input Characteristics

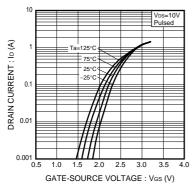


Fig.4 Typical Transfer Characteristics

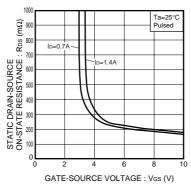


Fig.5 Static Drain-Source
On-State Resistance vs.
Gate source Voltage

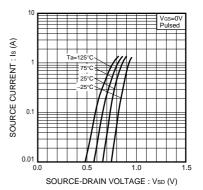


Fig.6 Source Current vs. Source-Drain Voltage

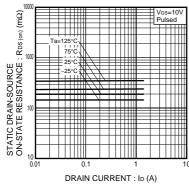


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current (I)

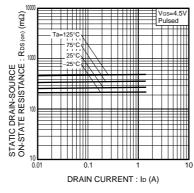


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current (II)

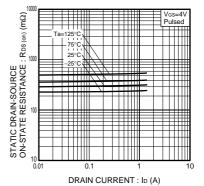


Fig.9 Static Drain-Source On-State Resistance vs. Drain Current (III)

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