

Transistors

2.5V Drive Nch+Nch MOS FET

US6K1

●Structure

Silicon N-channel MOS FET

●Features

- 1) Low On-resistance.
- 2) Space saving, small surface mount package (TUMT6).
- 3) Low voltage drive (2.5V drive).

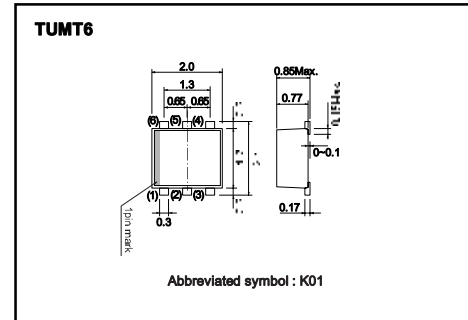
●Applications

Switching

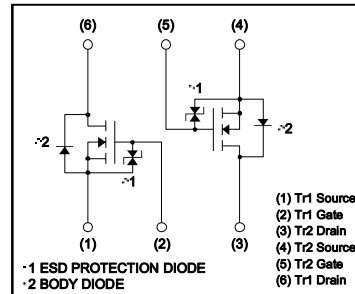
●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	3000
US6K1		○

■External dimensions (Unit : mm)



●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-source voltage	V _{DS}	30	V
Gate-source voltage	V _{GS}	12	V
Drain current	Continuous	I _D	±1.5
	Pulsed	I _{DP} *1	±6
Source current (Body diode)	Continuous	I _S	0.6
	Pulsed	I _{SP} *1	6
Total power dissipation	P _D *2	1.0	W / TOTAL
		0.7	W / ELEMENT
Channel temperature	T _{ch}	150	°C
Range of 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

●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} = 4.0V
		–	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
Gate-drain charge	Q _{gd}	–	0.3	–	nC	V _{GS} = 4.5V
						I _D = 1.5A

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

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