2.5V Drive Nch+Nch MOS FET

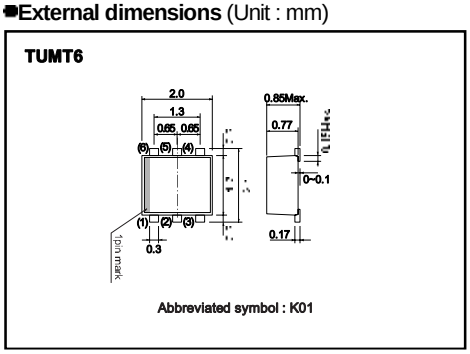
US6K1

●**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

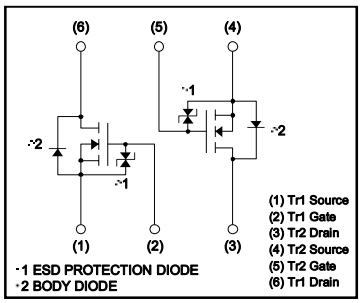
●**External dimensions** (Unit : mm)



●**Packaging specifications**

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

●**Inner circuit**



●**Absolute maximum ratings** (Ta=25℃)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	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		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
		179	°C/W / ELEMENT

* Mounted on a ceramic board

●**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 R_L= 20Ω
Fall time	t_f*	–	6	–	ns	R_G =10Ω
Total gate charge	Q_g*	–	1.6	2.2	nC	V_{DD}≒15V
Gate-source charge	Q_{gs}*	–	0.5	–	nC	V_{GS}= 4.5V
Gate-drain charge	Q_{gd}*	–	0.3	–	nC	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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