

Transistors

# 4V Drive Nch+Nch MOS FET

## US6K2

●Structure

Silicon N-channel MOS FET

●Features

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

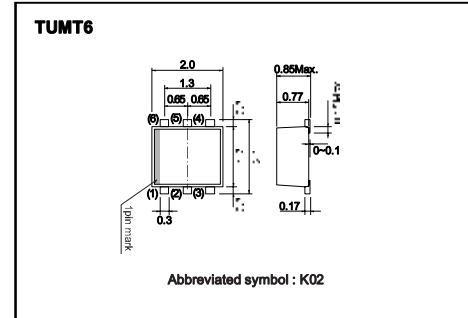
●Applications

Switching

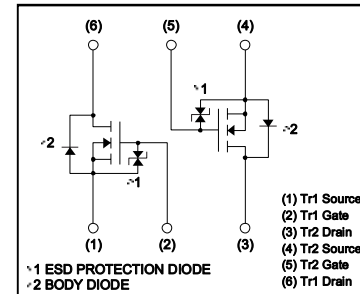
●Packaging specifications

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

●External 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 <sub>DSS</sub>	30	V	
Gate-source voltage	V <sub>GSS</sub>	20	V	
Drain current	Continuous	I <sub>D</sub>	±1.4	A
	Pulsed	I <sub>DP</sub> ·1	±5.6	A
Source current (Body diode)	Continuous	I <sub>S</sub>	0.6	A
	Pulsed	I <sub>SP</sub> ·1	5.6	A
Total power dissipation	P <sub>D</sub> ·2	1.0	W / TOTAL	
		0.7	W / ELEMENT	
Channel temperature	T <sub>ch</sub>	150	°C	
Range of storage temperature	T <sub>stg</sub>	-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 <sub>th(ch-a)</sub> ·*	125	°C/W / TOTAL
		179	°C/W / ELEMENT

·\* Mounted on a ceramic board

## Transistors

## ●Electrical characteristics (Ta=25°C)

&lt;It is the same characteristics for the Tr1 and Tr2&gt;

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I <sub>GSS</sub>	–	–	10	μA	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	30	–	–	V	I <sub>D</sub> = 1mA, V <sub>GS</sub> =0V
Zero gate voltage drain current	I <sub>DSS</sub>	–	–	1	μA	V <sub>DS</sub> = 30V, V <sub>GS</sub> =0V
Gate threshold voltage	V <sub>GS(th)</sub>	1.0	–	2.5	V	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1mA
Static drain-source on-state resistance	R <sub>DS(on)</sub>	–	170	240	mΩ	I <sub>D</sub> = 1.4A, V <sub>GS</sub> = 10V
		–	250	350	mΩ	I <sub>D</sub> = 1.4A, V <sub>GS</sub> = 4.5V
		–	270	380	mΩ	I <sub>D</sub> = 1.4A, V <sub>GS</sub> = 4V
Forward transfer admittance	Y <sub>fs</sub>	1	–	–	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 1.4A
Input capacitance	C <sub>iss</sub>	–	70	–	pF	V <sub>DS</sub> = 10V
Output capacitance	C <sub>oss</sub>	–	15	–	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	–	12	–	pF	f=1MHz
Turn-on delay time	t <sub>d(on)</sub>	–	6	–	ns	V <sub>DD</sub> = 15V
Rise time	t <sub>r</sub>	–	6	–	ns	I <sub>D</sub> = 0.7A
Turn-off delay time	t <sub>d(off)</sub>	–	13	–	ns	V <sub>GS</sub> = 10V
Fall time	t <sub>f</sub>	–	8	–	ns	R <sub>L</sub> = 21Ω R <sub>G</sub> =10Ω
Total gate charge	Q <sub>g</sub>	–	1.4	2.0	nC	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 5V
Gate-source charge	Q <sub>gs</sub>	–	0.6	–	nC	I <sub>D</sub> = 1.4A
Gate-drain charge	Q <sub>gd</sub>	–	0.3	–	nC	R <sub>L</sub> = 11Ω, R <sub>G</sub> = 10Ω

\*Pulsed

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

&lt;It is the same characteristics for the Tr1 and Tr2&gt;

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>SD</sub>	–	–	1.2	V	I <sub>S</sub> = 0.6A, V <sub>GS</sub> =0V

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