1.8V Drive Nch+Nch MOSFET

EM6K6

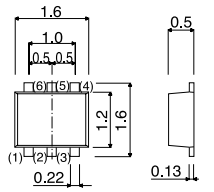
●Structure
Silicon N-channel
MOSFET

●Applications
Switching

●Features
1) The MOSFET elements are independent, eliminating mutual interference.
2) Mounting cost and area can be cut in half.
3) Low on-resistance.
4) Low voltage drive (1.8V) makes this device ideal for portable equipment.

●Dimensions (Unit : mm)

EMT6



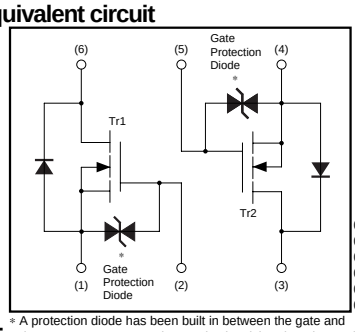
Each lead has same dimensions

Abbreviated symbol : K06

●Packaging specifications

Type	Package	Taping
	Code	T2R
	Basic ordering unit (pieces)	8000
EM6K6		○

●Equivalent circuit



(1)Tr1 Source
(2)Tr1 Gate
(3)Tr2 Drain
(4)Tr2 Source
(5)Tr2 Gate
(6)Tr1 Drain

∗ A protection diode has been built in between the gate and the source to protect against static electricity when the product is in use. Use the protection circuit when rated voltages are exceeded.

●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}	20	V
Gate–source voltage		V_{GSS}	±8	V
Drain current	Continuous	I_D	±300	mA
	Pulsed	I_{DP} ∗1	±600	mA
Total power dissipation		P_D ∗2	150	mW / TOTAL
			120	mW / ELEMENT
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55 to +150	°C

∗1 Pw≤10μs, Duty cycle≤1%
∗2 Each terminal mounted on a recommended land.

●Thermal resistance

Parameter	Symbol	Limits	Unit
Channel to ambient	Rth(ch-a) ∗	833	°C/W / TOTAL
		1042	°C/W / ELEMENT

∗ Each terminal mounted on a recommended land

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

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	–	–	±10	μA	V_{GS}=±8V, V_{DS}=0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	20	–	–	V	I_D=1mA, V_{GS}=0V
Zero gate voltage drain current	I_{DSS}	–	–	1.0	μA	V_{DS}=20V, V_{GS}=0V
Gate threshold voltage	$V_{GS(th)}$	0.3	–	1.0	V	V_{DS}=10V, I_D=1mA
Static drain-source on-state resistance	$R_{DS(on)}$*	–	0.7	1.0	Ω	I_D=300mA, V_{GS}=4.0V
		–	0.8	1.2	Ω	I_D=300mA, V_{GS}=2.5V
		–	1.0	1.4	Ω	I_D=300mA, V_{GS}=1.8V
Forward transfer admittance	$\|Y_{fs}\|$ *	400	–	–	ms	I_D=300mA, V_{DS}=10V
Input capacitance	C_{iss}	–	25	–	pF	V_{DS}=10V
Output capacitance	C_{oss}	–	10	–	pF	V_{GS}=0V
Reverse transfer capacitance	C_{rss}	–	10	–	pF	f=1MHz
Turn-on delay time	$t_{d(on)}$ *	–	5	–	ns	I_D=150mA, V_{DD} ≒10V
Rise time	t_r *	–	10	–	ns	V_{GS}=4.0V
Turn-off delay time	$t_{d(off)}$ *	–	15	–	ns	R_L=67Ω
Fall time	t_f *	–	10	–	ns	R_G=10Ω

* 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= 100mA, V_{GS}=0V

* Pulsed

●**Electrical characteristic curves**

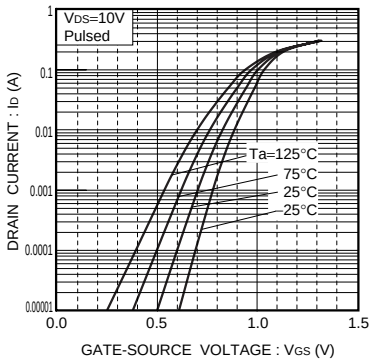


Fig.1 Typical transfer characteristics

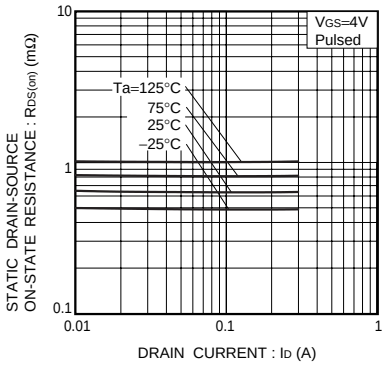


Fig.2 Static drain-source on-state resistance vs. drain current (I)

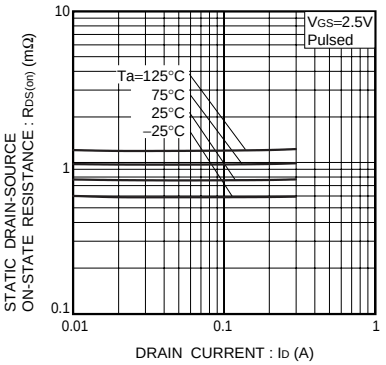


Fig.3 Static drain-source on-state resistance vs. drain current (II)

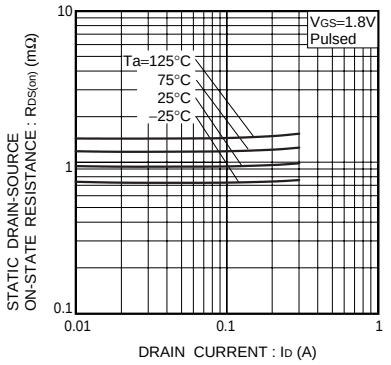


Fig.4 Static drain-source on-state resistance vs. drain current (III)

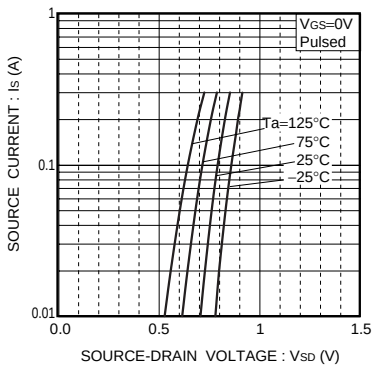


Fig.5 Source current vs. source-drain voltage

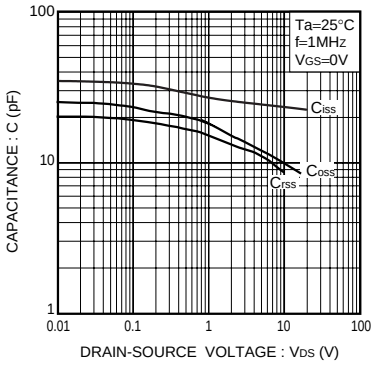


Fig.6 Typical capacitance vs. drain-source voltage

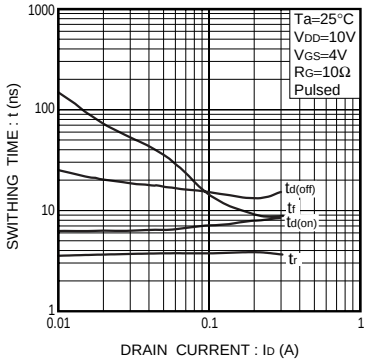


Fig.7 Switching characteristics

●Switching characteristics measurement circuit

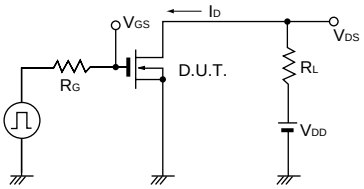


Fig.8 Switching time measurement circuit

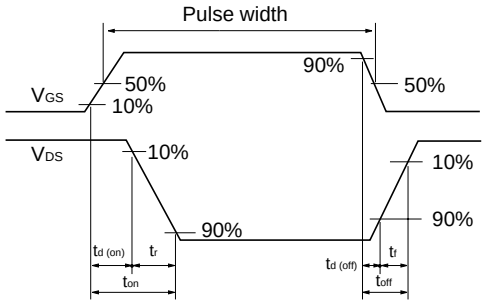


Fig.9 Switching time waveforms

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