1.2V Drive Nch+Nch MOSFET

EM6K7

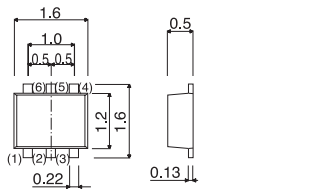
●Structure
Silicon N-channel
MOSFET

●Applications
Switching

●Features
1) The MOSFET elements are independent, eliminating mutual interference.
2) Mounting cost and area can be cut in half.
3) Low voltage drive (1.2V) makes this device ideal for portable equipment.

●Dimensions (Unit : mm)

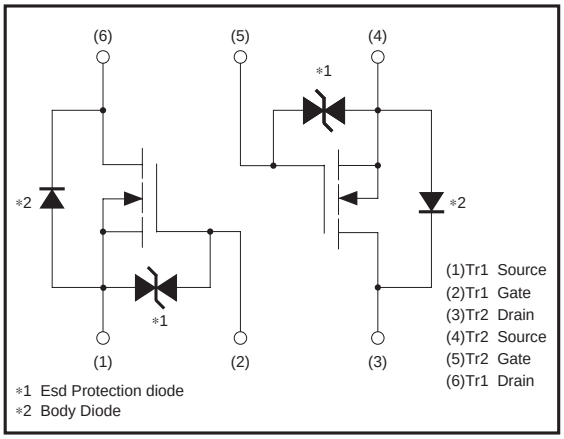
EMT6



Each lead has same dimensions

Abbreviated symbol : K07

●Inner circuit



∗1 Esd Protection diode
∗2 Body Diode

●Packaging specifications

Type	Package	Taping
	Code	T2R
	Basic ordering unit (pieces)	8000
EM6K7		◯

●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	±200	mA
	Pulsed	I_{DP} ∗1	±400	mA
Total power dissipation		P_D ∗2	150	mW / TOTAL
			120	mW / ELEMENT
Channel temperature		Tch	150	°C
Range of 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	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	$R_{DS(on)}$ *	–	0.8	1.2	Ω	I_D=200mA, V_{GS}=2.5V
		–	1.0	1.4	Ω	I_D=200mA, V_{GS}=1.8V
		–	1.2	2.4	Ω	I_D=40mA, V_{GS}=1.5V
		–	1.6	4.8	Ω	I_D=20mA, V_{GS}=1.2V
Forward transfer admittance	$\|Y_{fs}\|$ *	200	–	–	mS	V_{DS}=10V, I_D=200mA
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	V_{DD} ≒10V, I_D=150mA
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 characteristics curves

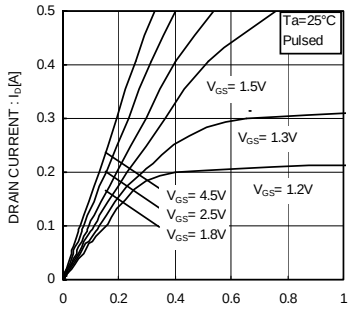


Fig.1 Typical Output Characteristics(Ⅰ)

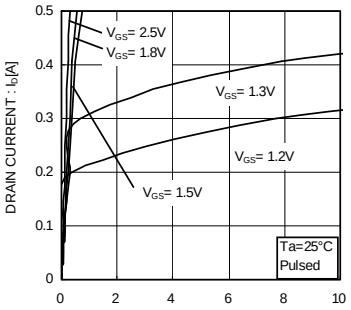


Fig.2 Typical Output Characteristics(Ⅱ)

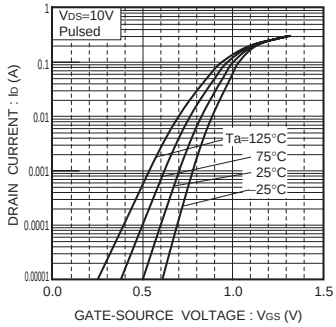


Fig.3 Typical transfer characteristics

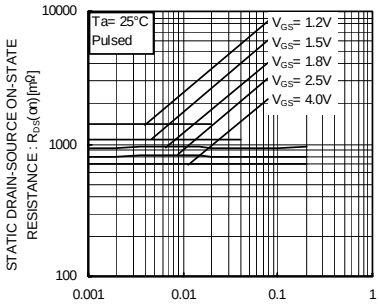


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current(Ⅰ)

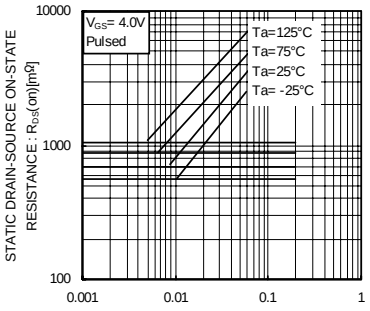


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current(Ⅱ)

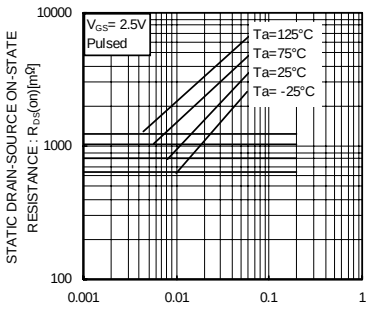


Fig.6 Static Drain-Source On-State Resistance vs. Drain Current(Ⅱ)

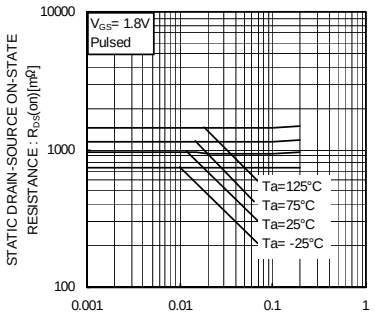


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(Ⅲ)

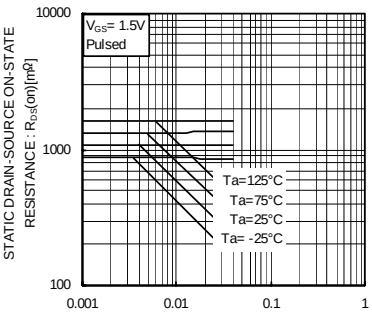


Fig.8 Static Drain-Source On-State Resistance vs. Drain Current(Ⅳ)

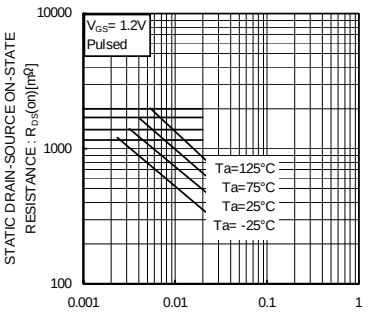


Fig.9 Static Drain-Source On-State Resistance vs. Drain Current(Ⅴ)

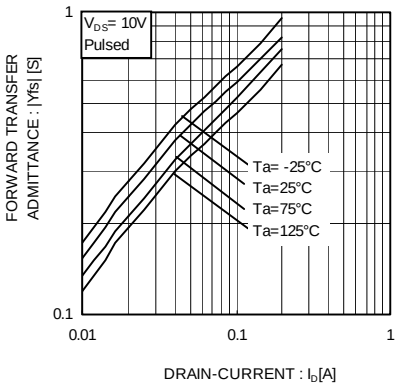


Fig.10 Forward Transfer Admittance vs. Drain Current

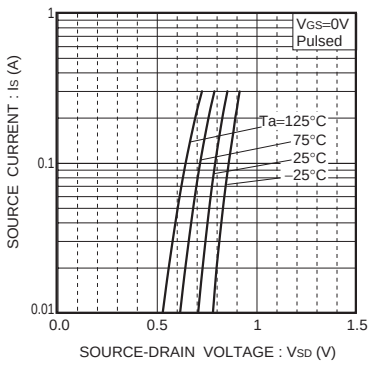


Fig.11 Source current vs. source-drain voltage

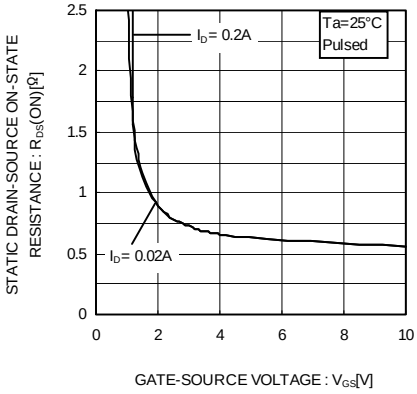


Fig.12 Static Drain-Source On-State Resistance vs. Gate Source Voltage

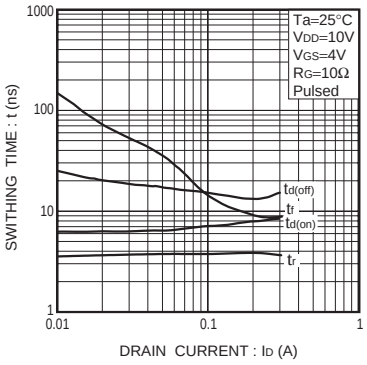


Fig.13 Switching characteristics

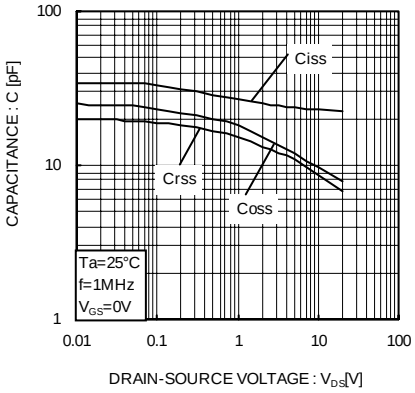


Fig.14 Typical Capacitance vs. Drain-Source Voltage

●Measurement circuit

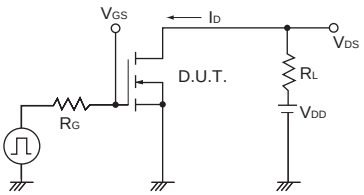


Fig.1-1 Switching time measurement circuit

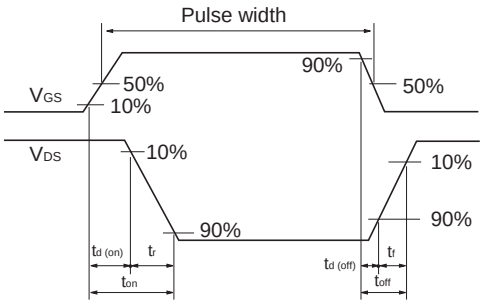


Fig.1-2 Switching waveforms

●Notice

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit

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