2SK1717

Small switching (60V, 2A)

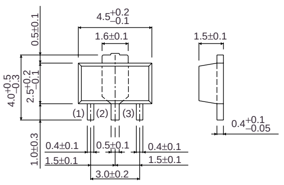
●Features

1) Low on resistance.
2) High-speed switching.
3) Optimum for a pocket resource etc. because of undervoltage actuation (2.5V actuation).
4) Driving circuit is easy.
5) Easy to use parallel.
6) It is strong to an electrostatic discharge.

●Structure

Silicon N-channel
MOS FET transistor

●External dimensions (Units : mm)



ROHM : MPT3
E I A J : SC-62

Abbreviated symbol : KE

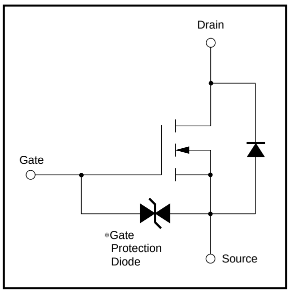
(1) Gate
(2) Drain
(3) Source

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	60	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	2	A
	Pulsed	I_{DP}*1	8	A
Reverse drain current	Continuous	I_{DR}	2	A
	Pulsed	I_{DRP}*1	8	A
Total power dissipation(Tc=25°C)		P_D	0.5 2*2	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55~+150	°C

∗1 Pw ≤ 10μs, Duty cycle ≤ 1%
∗2 When mounted on a 40 × 40 × 0.7 mm alumina board.

●Internal equivalent circuit



∗ 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.

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage	I_{GSS}	−	−	±10	μA	V_{GS} = ±20V, V_{DS} = 0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	60	−	−	V	I_D = 1mA, V_{GS} = 0V
Zero gate voltage drain current	I_{DSS}	−	−	10	μA	V_{DS} = 60V, V_{GS} = 0V
Gate threshold voltage	$V_{GS(th)}$	0.8	−	1.5	V	V_{DS} = 10V, I_D = 1mA
Static drain-source on-state resistance	$R_{DS(on)}$	−	0.25	0.32	Ω	I_D = 1A, V_{GS} = 4V
	$R_{DS(on)}$	−	0.35	0.45	Ω	I_D = 1A, V_{GS} = 2.5V
Forward transfer admittance	$\lvert Y_{fs} \rvert$ ∗	1.5	−	−	S	I_D = 1A, V_{DS} = 10V
Input capacitance	C_{iss}	−	160	−	pF	V_{DS} = 10V
Output capacitance	C_{oss}	−	85	−	pF	V_{GS} = 0V
Reverse transfer capacitance	C_{rss}	−	25	−	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	−	20	−	ns	I_D = 1A, V_{DD} ≒ 30V
Rise time	t_r	−	50	−	ns	V_{GS} = 4V
Turn-off delay time	$t_{d(off)}$	−	120	−	ns	R_L = 30Ω
Fall time	t_f	−	70	−	ns	R_G = 10Ω

∗ Pw ≤ 300μs, Duty cycle ≤ 1%

●Electrical characteristic curves

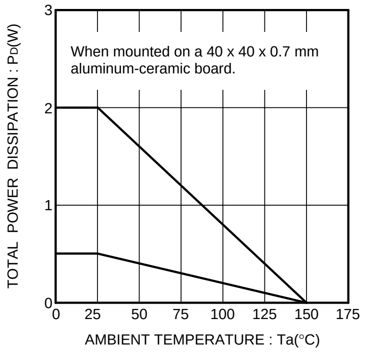


Fig.1 Total Power Dissipation vs.
Case Temperature

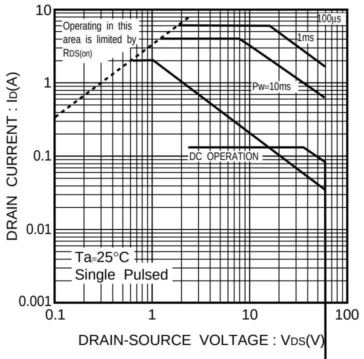


Fig.2 Maximum Safe Operating Area

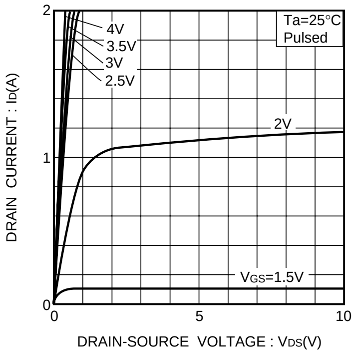


Fig.3 Typical Output Characteristics

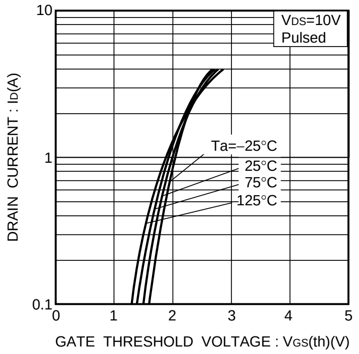


Fig.4 Typical Transfer Characteristics

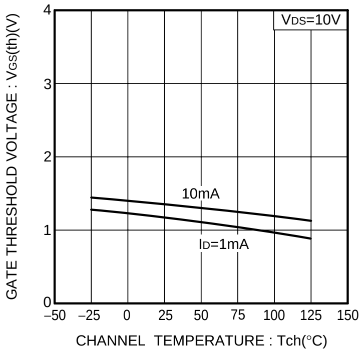


Fig.5 Gate Threshold Voltage vs.
Channel Temperature

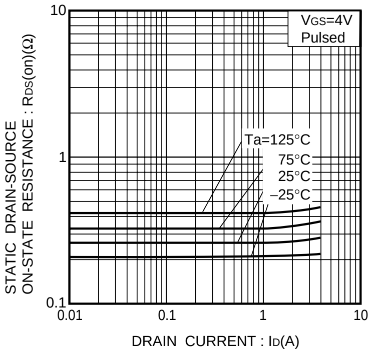


Fig.6 Static Drain-Source On-
State Resistance vs.
Drain Current(I)

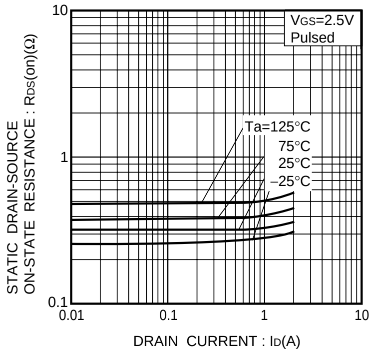


Fig.7 Static Drain-Source On-State Resistance vs. Drain Current(II)

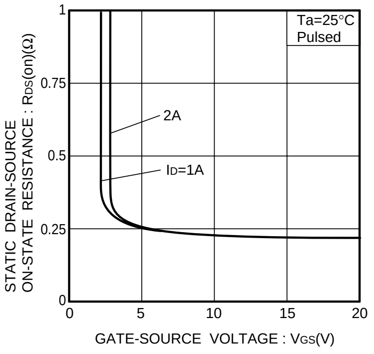


Fig.8 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

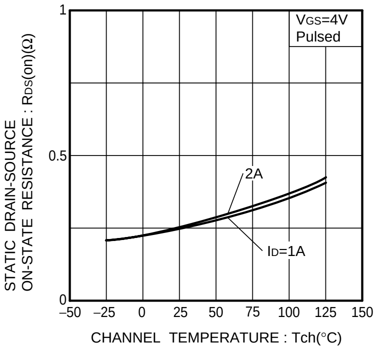


Fig.9 Static Drain-Source On-State Resistance vs. Channel Temperature

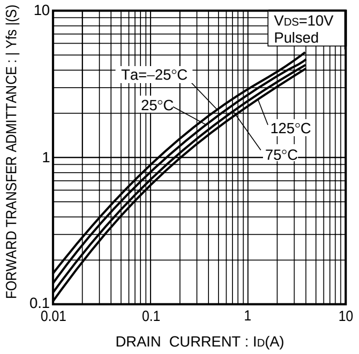


Fig.10 Forward Trasfer Admitance vs. Drain Current

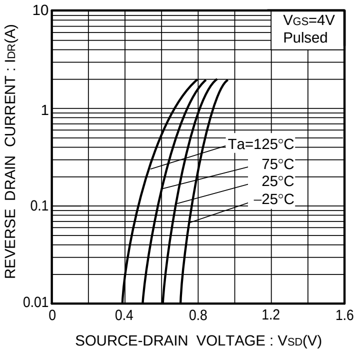


Fig.11 Reverse Drain Current vs. Source-Drain Voltage(I)

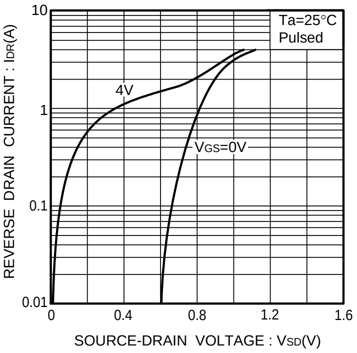


Fig.12 Reverse Drain Current vs. Source-Drain Voltage(II)

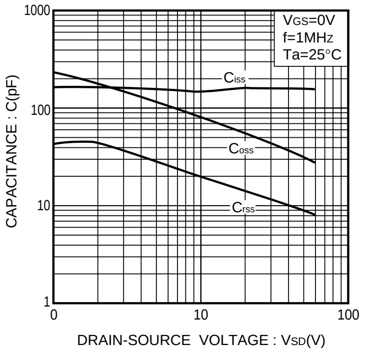


Fig.13 Typical Capacitance vs. Drain-Source Voltage

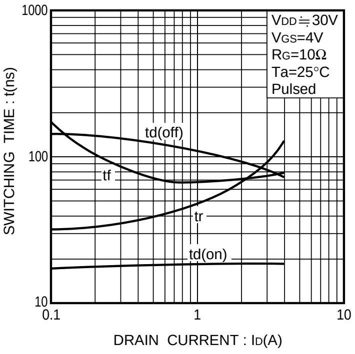


Fig.14 Switching Characteristics
(a measurement circuit diagram Fig.17 , it refers 18 times)

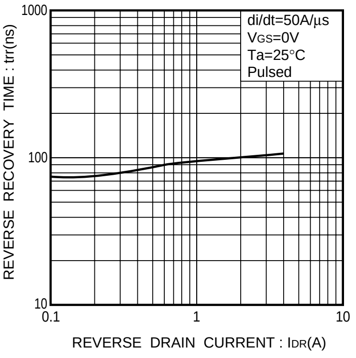


Fig.15 Reverse Recovery Time vs. Reverse Drain Current

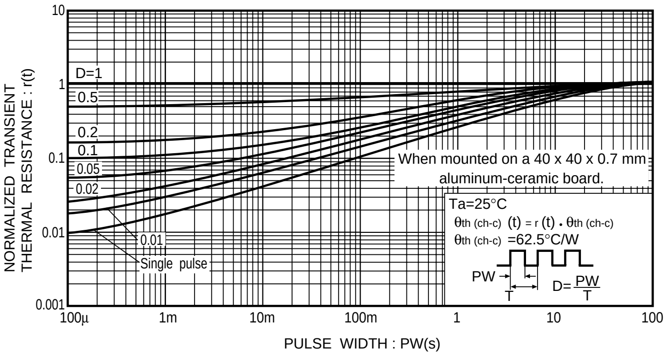


Fig.16 Normarized Transient Thermal Resistance vs. Pulse Width

●Switching characteristics measurement circuit

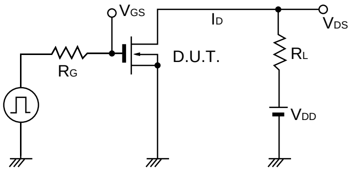


Fig.17 Switching Time Test Circuit

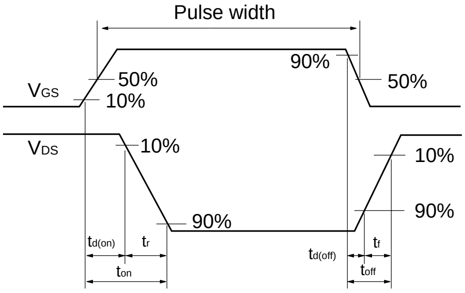


Fig.18 Switching Time Waveforms