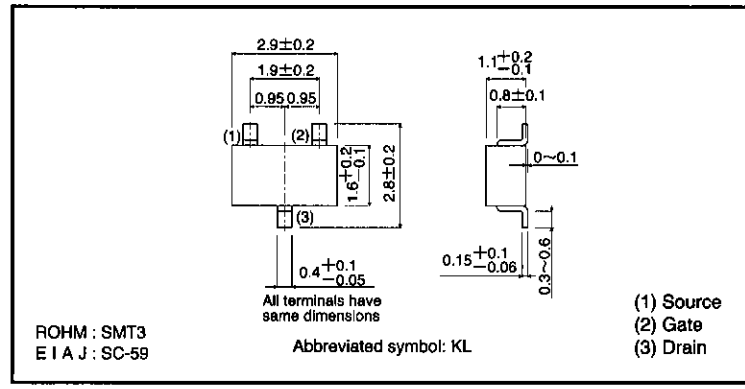
Interface and switching (30V, 200mA)
2SK2731

●Features
1) Low on-resistance.
2) High-speed switching.
3) Low-voltage drive (4V).
4) Easily designed drive circuits.
5) Easy to use in parallel.

●Structure
Silicon N-channel
MOSFET transistor

●External dimensions (Units: mm)

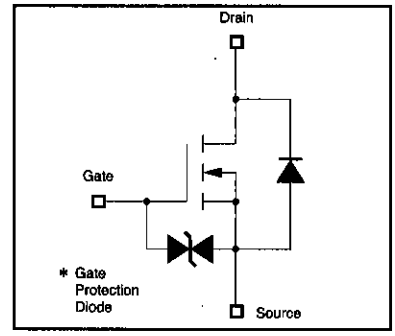


●Absolute maximum ratings (Ta = 25℃)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	I_D	200	mA
	Pulsed	I_{DP}*	800	mA
Drain reverse current	Continuous	I_{DR}	200	mA
	Pulsed	I_{DRP}*	800	mA
Total power dissipation		P_D	200	mW
Channel temperature		Tch	150	℃
Storage temperature		Tstg	−55~150	℃

* Pw≦10 μs, Duty cycle≦1%

●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 fixed voltages are exceeded.

●Electrical characteristics (Ta = 25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate leakage current	I_{GSS}	—	—	±10	μA	V_{GS}=±20V, V_{DS}=0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D=1mA, V_{GS}=0V
Drain cutoff current	I_{DSS}	—	—	10	μA	V_{DS}=30V, V_{GS}=0V
Gate threshold voltage	$V_{GS(th)}$	1	—	2.5	V	V_{DS}=10V, I_D=1mA
Drain-source on-state resistance	$R_{DS(on)}$	—	1.5	2.8	Ω	I_D=0.1A, V_{GS}=10V
		—	2.8	4.5		I_D=0.1A, V_{GS}=4V
Forward propagation admittance	$\|Y_{fs}\|$*	100	—	—	mS	V_{DS}=10V, I_D=0.1A
Input capacitance	C_{iss}	—	25	—	pF	V_{DS}=10V
Output capacitance	C_{oss}	—	15	—	pF	V_{GS}=0V
Reverse transfer capacitance	C_{rss}	—	10	—	pF	f=1MHz
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	I_D=0.1A, V_{DD}≒15V
Rise time	t_r	—	20	—	ns	V_{GS}=10V
Turn-off delay time	$t_{d(off)}$	—	90	—	ns	R_L=150Ω
Fall time	t_f	—	100	—	ns	R_G=10Ω

* Pw≦300μs、Duty cycle≦1%

●Packaging specifications

Type	Package	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
2SK2731		○

●Electrical characteristic curves

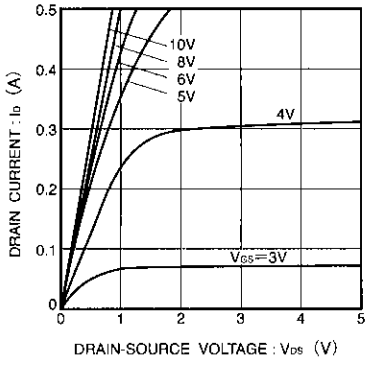


Fig.1 Typical Output Characteristics

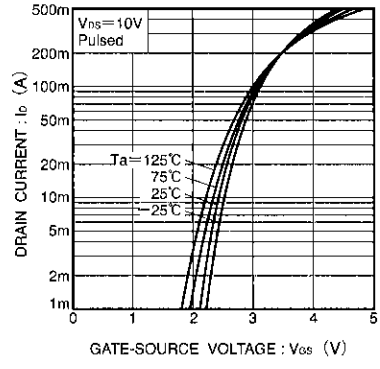


Fig.2 Typical Transfer Characteristics

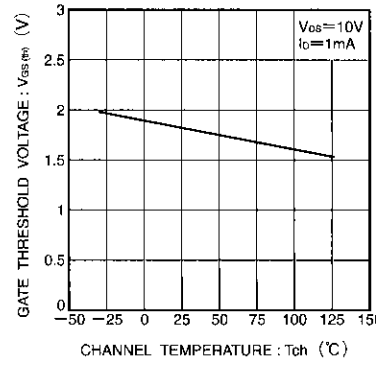


Fig.3 Gate Threshold Voltage vs. Channel Temperature

●Electrical characteristic curves

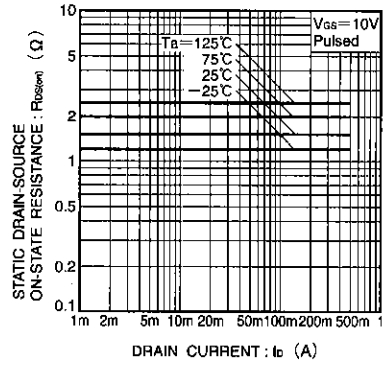


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (I)

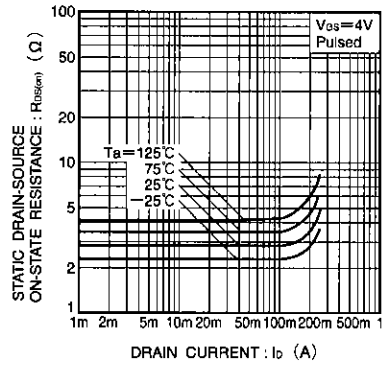


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current (II)

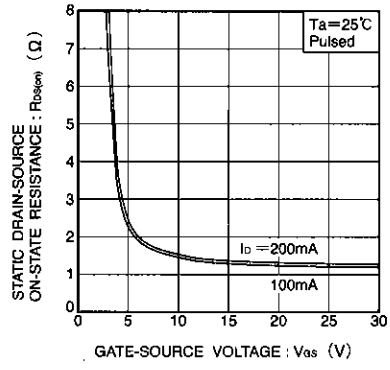


Fig.6 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

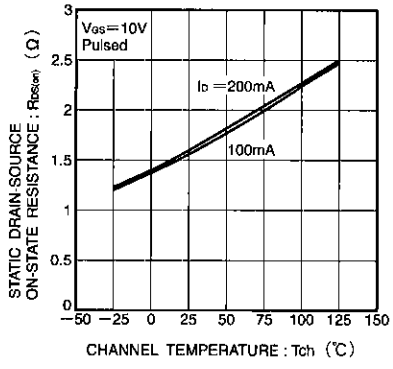


Fig.7 Static Drain-Source On-State Resistance vs. Channel Temperature

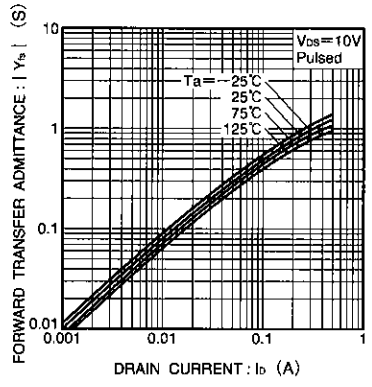


Fig.8 Forward Transfer Admittance vs. Drain Current

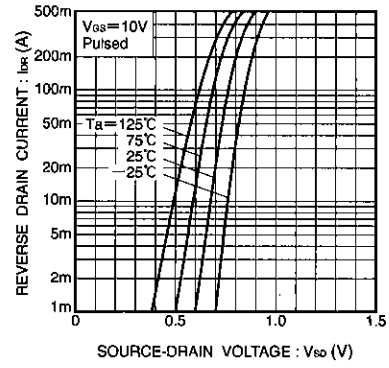


Fig.9 Reverse Drain Current vs. Source-Drain Voltage (I)

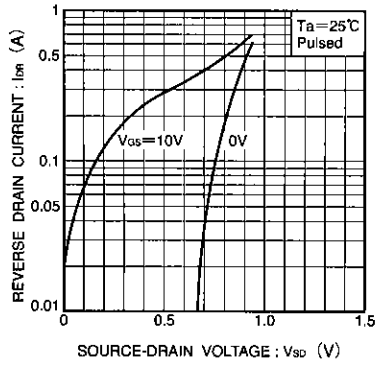


Fig.10 Reverse Drain Current vs. Source-Drain Voltage (II)

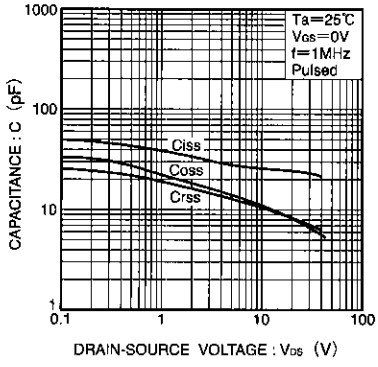


Fig.11 Typical Capacitance vs. Drain-Source Voltage

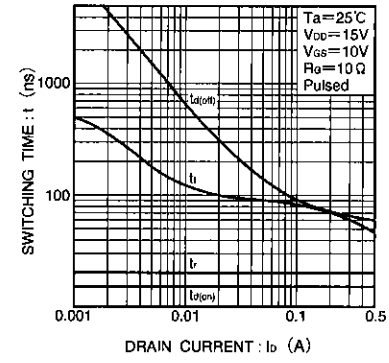


Fig.12 Switching Characteristics (See Figure. 13 and 14 for measurement circuits)

MOS FET

●Switching characteristics measurement circuit

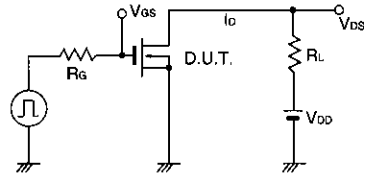


Fig.13 Switching Time Measurement Circuit

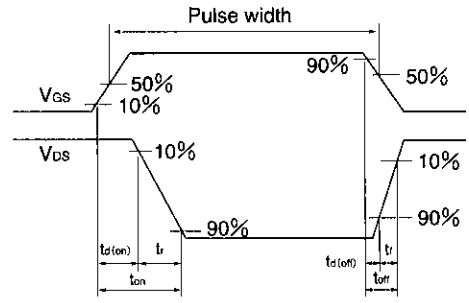


Fig.14 Switching Time Waveforms

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