Transistors

Switching (600V, 7A)
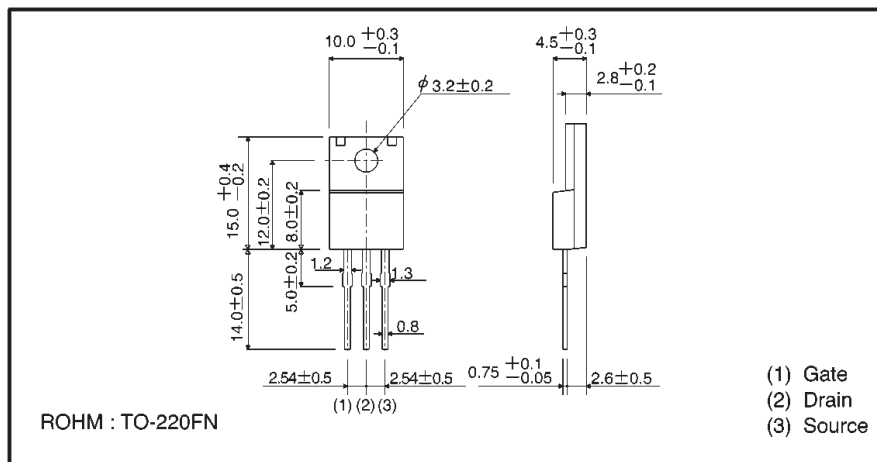## 2SK2740

●Features
1) Low on-resistance.
2) Fast switching speed.
3) Wide SOA (safe operating area).
4) Gate-source voltage (VGSS) guaranteed to be ±30V.
5) Easily designed drive circuits.
6) Easy to parallel.

●Structure
Silicon N-channel
MOSFET

●External dimensions (Units: mm)

ROHM : TO-220FN

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

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	600	V
Gate-source voltage		V_{GSS}	±30	V
Drain current	Continuous	I_D	7	A
	Pulsed	$I_{DP}*$	28	A
Reverse drain current	Continuous	I_{DR}	7	A
	Pulsed	$I_{DRP}*$	28	A
Total power dissipation(Tc=25°C)		P_D	30	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55〜+150	°C

＊ Pw≦10 μs, Duty cycle≦1%

●Packaging specifications

Type	Package		Bulk
	Code		—
	Basic ordering unit (pieces)		500
2SK2740			○

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●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage	I_{GSS}	—	—	±100	nA	$V_{GS}=\pm30V$, $V_{DS}=0V$
Drain-source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D=1mA$, $V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}	—	—	100	μA	$V_{DS}=600V$, $V_{GS}=0V$
Gate threshold voltage	$V_{GS(th)}$	2.0	—	4.0	V	$V_{DS}=10V$, $I_D=1mA$
Static drain-source on-state resistance	$R_{DS(on)}$	—	1.0	1.2	Ω	$I_D=4A$, $V_{GS}=10V$
Forward transfer admittance	$\mid Y_{fs} \mid$*	3.0	6.0	—	S	$I_D=4A$, $V_{DS}=10V$
Input capacitance	C_{iss}	—	1050	—	pF	$V_{DS}=10V$
Output capacitance	C_{oss}	—	210	—	pF	$V_{GS}=0V$
Reverse transfer capacitance	C_{rss}	—	80	—	pF	$f=1MHz$
Turn-on delay time	$t_{d(on)}$	—	19	—	ns	$I_D=4A$, $V_{DD}\fallingdotseq150V$
Rise time	t_r	—	22	—	ns	$V_{GS}=10V$
Turn-off delay time	$t_{d(off)}$	—	79	—	ns	$R_L=37.5\Omega$
Fall time	t_f	—	30	—	ns	$R_G=10\Omega$
Reverse recovery time	t_{rr}	—	590	—	ns	$I_{DR}=7A$, $V_{GS}=0V$
Reverse recovery charge	Q_{rr}	—	4.6	—	μC	$di/dt=100A/\mu s$

＊ Pw≦300μs, Duty cycle≦1%

●Electrical characteristic curves
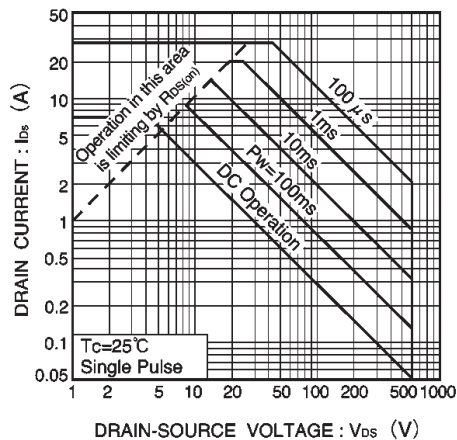
Fig.1 Maximum safe operating area
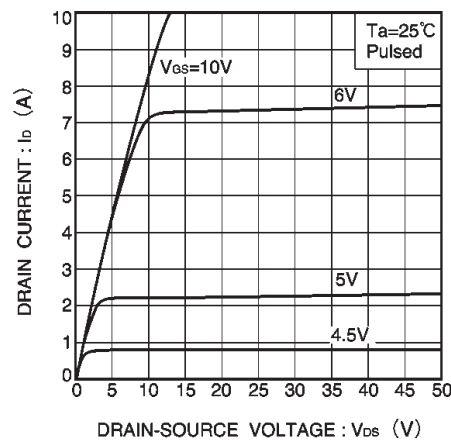
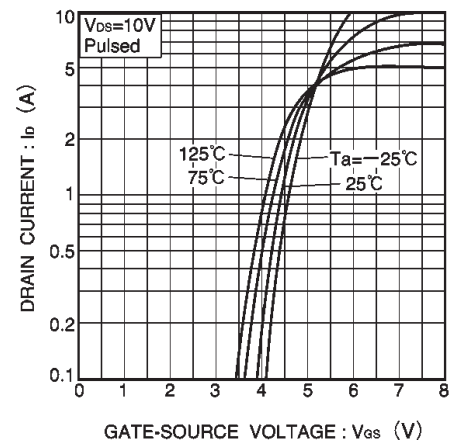Fig.2   Typical output characteristics

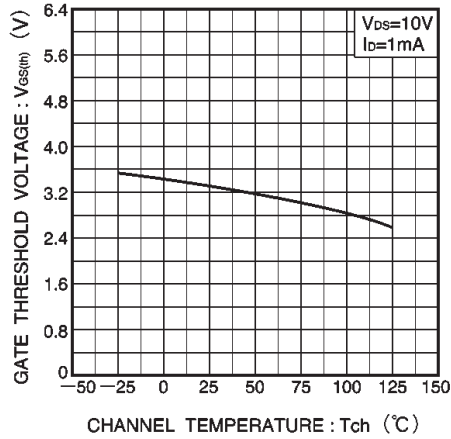
Fig.3   Typical transfer characteristics

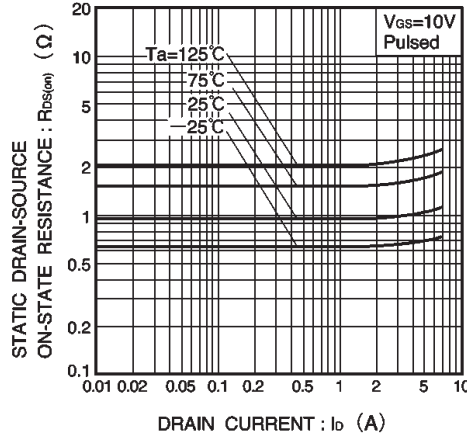Fig.4 Gate threshold voltage vs. channel temperature

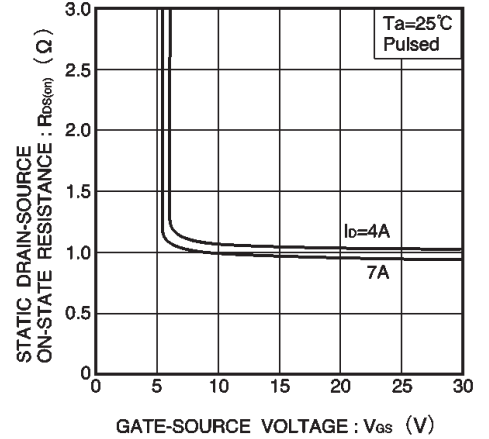Fig.5 Static drain-source on-state resistance vs. drain current

Fig.6 Static drain-source on-state resistance vs. gate-source voltage
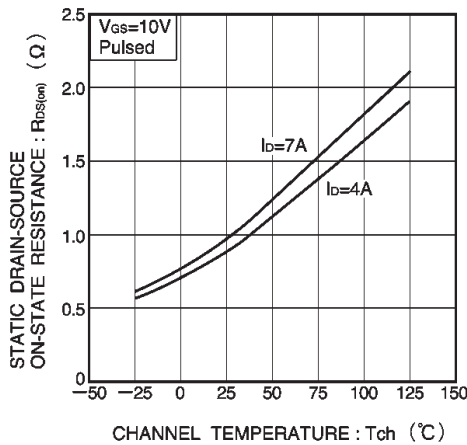

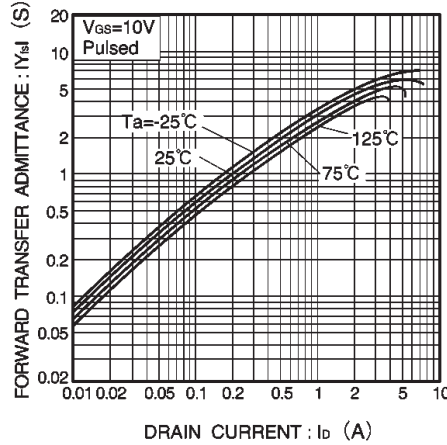Fig.7 Static drain-source on-state resistance vs. channel temperature

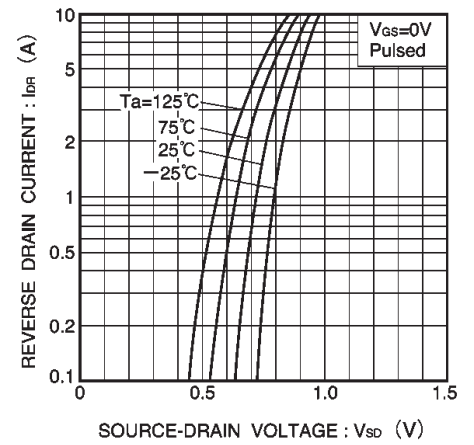Fig.8 Forward transfer admittance vs. drain current
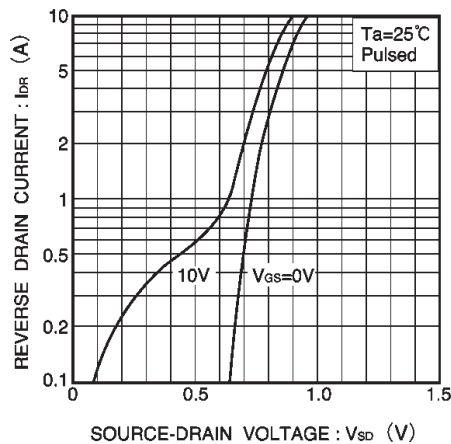

Fig.9 Reverse drain current vs. source-drain voltage（Ⅰ）
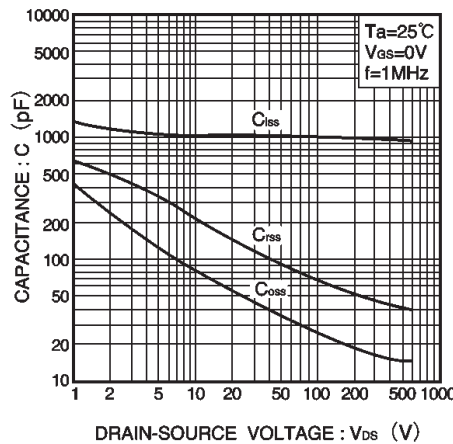

Fig.10 Reverse drain current vs. source-drain voltage（Ⅱ）

Fig.11 Typical capacitance vs. drain-source voltage
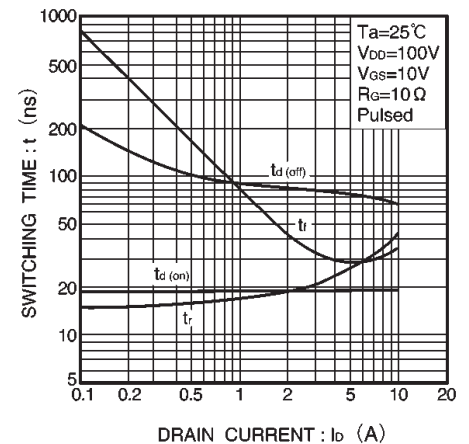
Fig.12 Switching characteristics（See Figures 16 and 17 for the measurement circuit and resultant waveforms）

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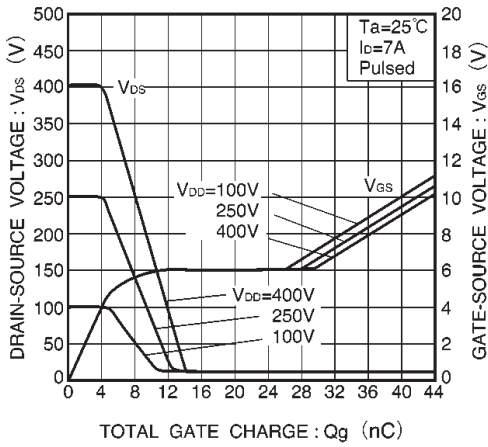
Fig.13　Dynamic input characteristics (See Figure 18 for measurement circuit)
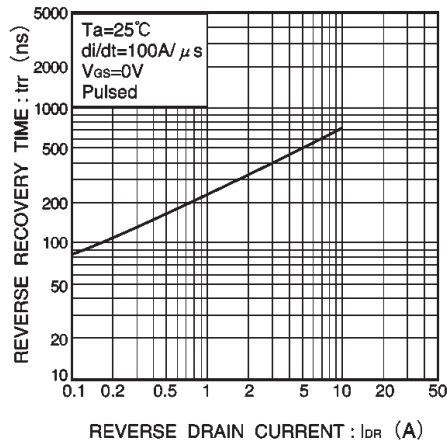
Fig.14　Reverse recovery time vs. reverse drain current
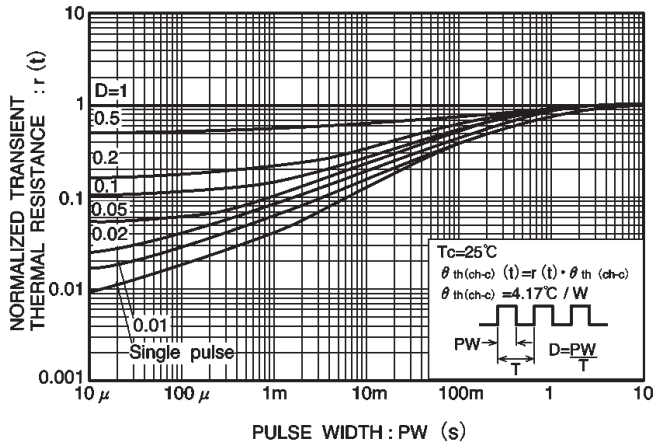
Fig.15　Normalized transient thermal resistance vs. pulse width

●Switching characteristics measurement circuit
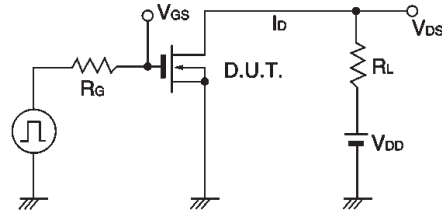
Fig.16　Switching time measurement circuit
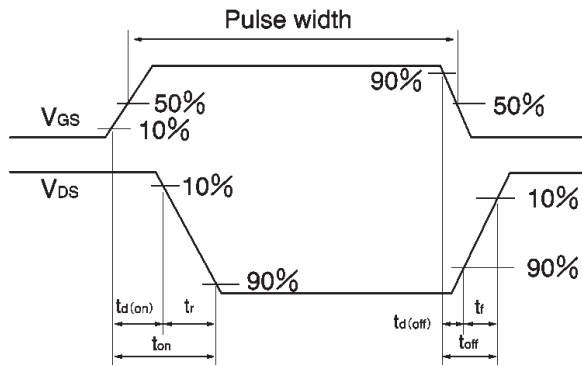
Fig.17　Switching time waveforms
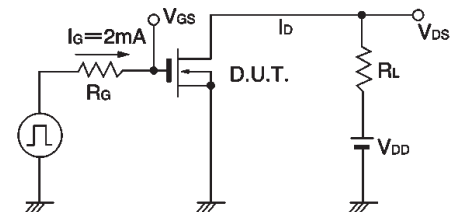
Fig.18　Gate charge measurement circuit

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