

# Switching (600V, 4A) 2SK2792

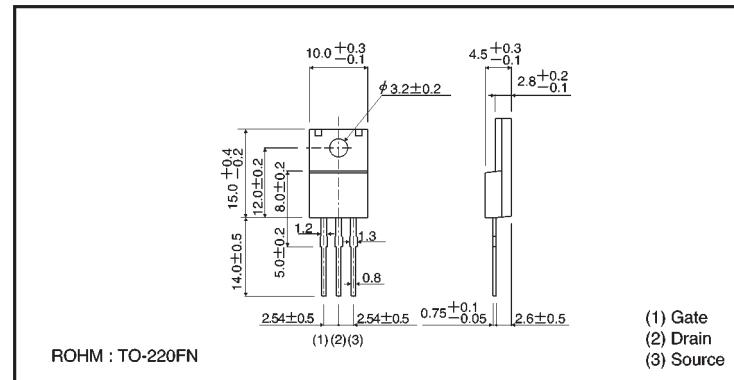
## ● Features

- 1) Low on-resistance.
- 2) Fast switching speed.
- 3) Wide SOA (safe operating area).
- 4) Gate-source voltage ( $V_{GS}$ ) guaranteed to be  $\pm 30V$ .
- 5) Easily designed drive circuits.
- 6) Easy to parallel.

## ● Structure

## Silicon N-channel MOSFET

● External dimensions (Units: mm)



- Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Drain-source voltage	V <sub>DSS</sub>	600	V
Gate-source voltage	V <sub>GSS</sub>	±30	V
Drain current	Continuous	I <sub>D</sub>	4
	Pulsed	I <sub>DP</sub> *	16
Reverse drain current	Continuous	I <sub>DR</sub>	4
	Pulsed	I <sub>DRP</sub> *	16
Total power dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	30	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

\*  $P_w \leq 10 \mu s$ , Duty cycle  $\leq 1\%$

## ● Packaging specifications

Type	Package	Bulk
	Code	—
	Basic ordering unit (pieces)	500
2SK2792	○	

● Electrical characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-source leakage	$I_{GSS}$	—	—	$\pm 100$	nA	$V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0\text{V}$
Drain-source breakdown voltage	$V_{(BR)DSS}$	600	—	—	V	$I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$
Zero gate voltage drain current	$I_{DSS}$	—	—	100	$\mu\text{A}$	$V_{DS} = 600\text{V}$ , $V_{GS} = 0\text{V}$
Gate threshold voltage	$V_{GS(\text{th})}$	2.0	—	4.0	V	$V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$
Static drain-source on-state resistance	$R_{DS(on)}$	—	1.8	2.4	$\Omega$	$I_D = 2\text{A}$ , $V_{GS} = 10\text{V}$
Forward transfer admittance	$ Y_{fs} $	1.0	2.7	—	S	$I_D = 2\text{A}$ , $V_{DS} = 10\text{V}$
Input capacitance	$C_{iss}$	—	610	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	$C_{oss}$	—	120	—	pF	$V_{GS} = 0\text{V}$
Reverse transfer capacitance	$C_{rss}$	—	53	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	14	—	ns	$I_D = 2\text{A}$ , $V_{DD} = 150\text{V}$
Rise time	$t_r$	—	15	—	ns	$V_{GS} = 10\text{V}$
Turn-off delay time	$t_{d(off)}$	—	48	—	ns	$R_L = 75\Omega$
Fall time	$t_f$	—	34	—	ns	$R_G = 10\Omega$
Reverse recovery time	$t_{rr}$	—	540	—	ns	$I_{DR} = 4\text{A}$ , $V_{GS} = 0\text{V}$
Reverse recovery charge	$Q_{rr}$	—	3.1	—	$\mu\text{C}$	$di/dt = 100\text{A}/\mu\text{s}$

## ● Electrical characteristic curves

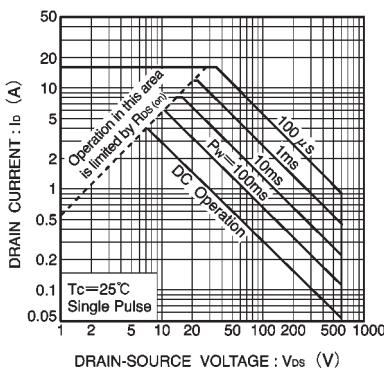


Fig.1 Maximum safe operating area

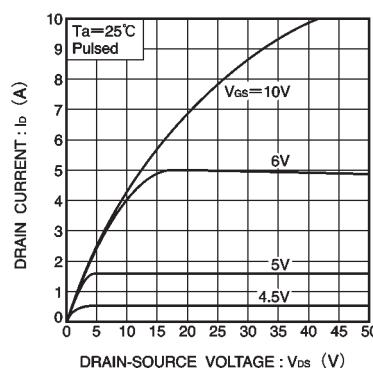


Fig.2 Typical output characteristics

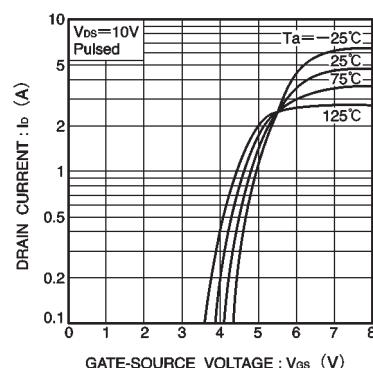


Fig.3 Typical transfer characteristics

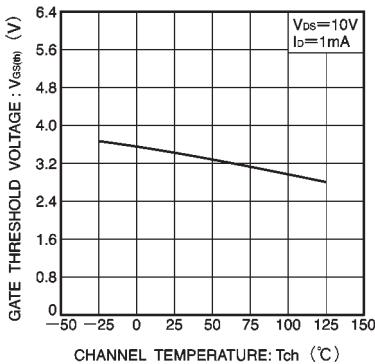


Fig.4 Gate threshold voltage vs. channel temperature

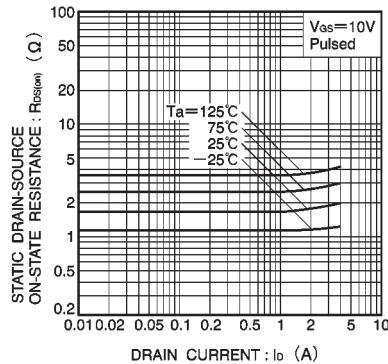


Fig.5 Static drain-source on-state resistance vs. drain current

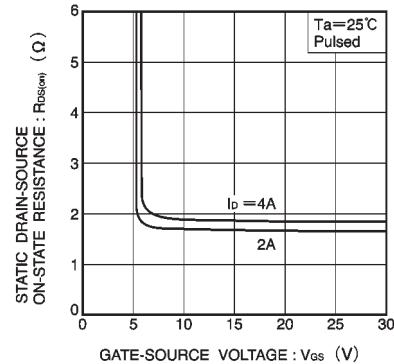


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

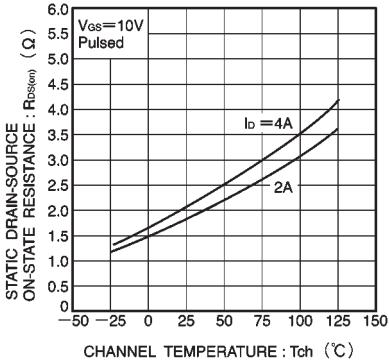


Fig.7 Static drain-source on-state resistance vs. channel temperature

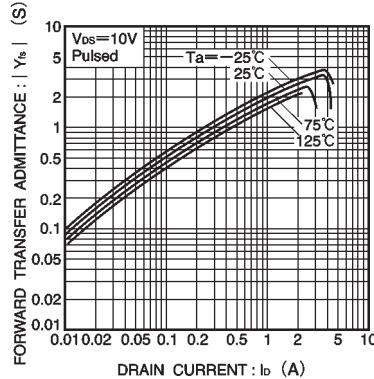


Fig.8 Forward transfer admittance vs. drain current

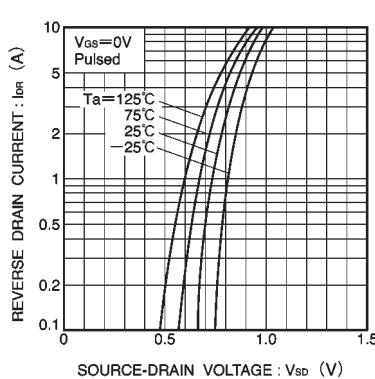


Fig.9 Reverse drain current vs. source-drain voltage (I )

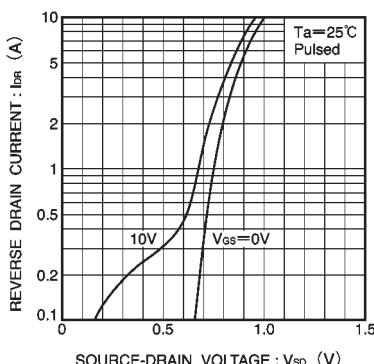


Fig.10 Reverse drain current vs. source-drain voltage (II)

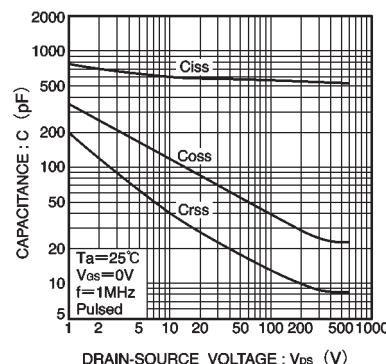


Fig.11 Typical capacitance vs. drain-source voltage

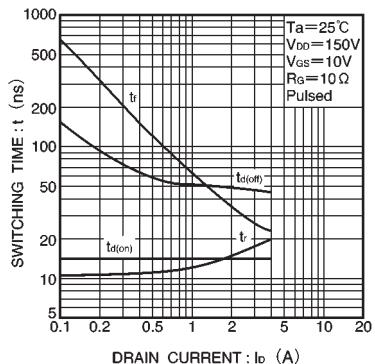
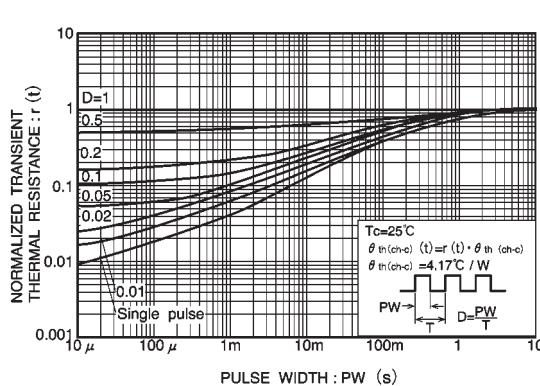
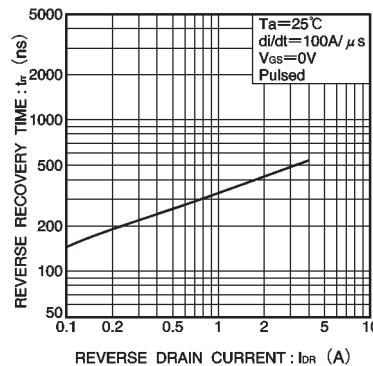
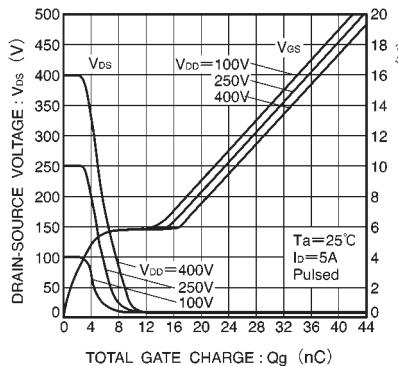
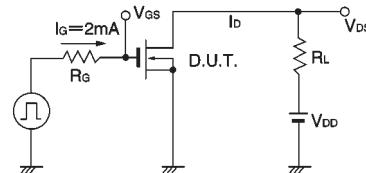
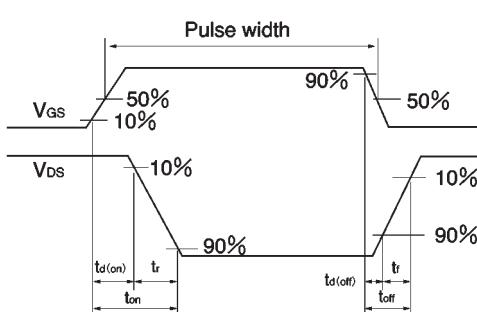
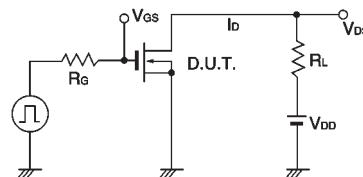


Fig.12 Switching characteristics (See Figures 16 and 17 for the measurement circuit and resultant waveforms)



● Switching characteristics measurement circuit



## Appendix

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