



SANYO Semiconductors

DATA SHEET

2SK4098FS — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- High-speed switching.
- Avalanche resistance guarantee.
- 10V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		600	V
Gate-to-Source Voltage	V _{GSS}		±30	V
Drain Current (DC)	I _{Dc} *1	Limited only by maximum temperature T _{ch} =150°C	7	A
	I _{Dpack} *2	T _c =25°C (SANYO's ideal heat dissipation condition)*3	6	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	28	A
Allowable Power Dissipation	P _D		2.0	W
		T _c =25°C (SANYO's ideal heat dissipation condition)*3	33	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *4	E _A		98	mJ
Avalanche Current *5	I _{AV}		6	A

Note : *1 Shows chip capability.

*2 Package limited.

*3 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

*4 V_{DD}=50V, L=5mH, I_{AV}=6A

*5 L≤5mH, Single pulse

Marking : K4098FS

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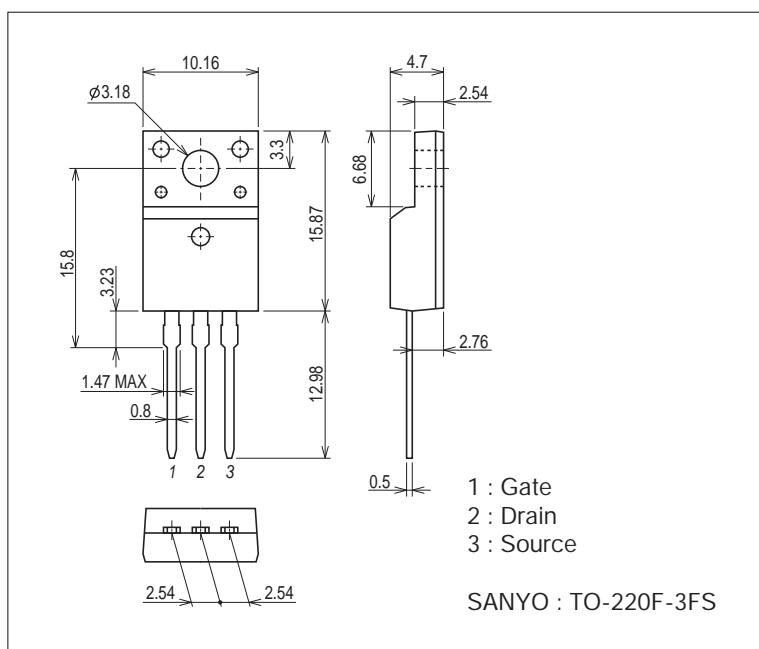
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}$, $V_{GS}=0\text{V}$	600			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=480\text{V}$, $V_{GS}=0\text{V}$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30\text{V}$, $V_{DS}=0\text{V}$			± 100	nA
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	3		5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=3.5\text{A}$	2.1	4.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})}$	$I_D=3.5\text{A}$, $V_{GS}=10\text{V}$		0.9	1.1	Ω
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}$, $f=1\text{MHz}$		600		pF
Output Capacitance	C_{oss}	$V_{DS}=30\text{V}$, $f=1\text{MHz}$		120		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=30\text{V}$, $f=1\text{MHz}$		25		pF
Turn-ON Delay Time	$t_{d(\text{on})}$	See specified Test Circuit.		17		ns
Rise Time	t_r	See specified Test Circuit.		34		ns
Turn-OFF Delay Time	$t_{d(\text{off})}$	See specified Test Circuit.		80		ns
Fall Time	t_f	See specified Test Circuit.		30		ns
Total Gate Charge	Q_g	$V_{DS}=200\text{V}$, $V_{GS}=10\text{V}$, $I_D=7\text{A}$		23.5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=200\text{V}$, $V_{GS}=10\text{V}$, $I_D=7\text{A}$		4.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=200\text{V}$, $V_{GS}=10\text{V}$, $I_D=7\text{A}$		13.5		nC
Diode Forward Voltage	V_{SD}	$I_S=7\text{A}$, $V_{GS}=0\text{V}$		0.9	1.2	V

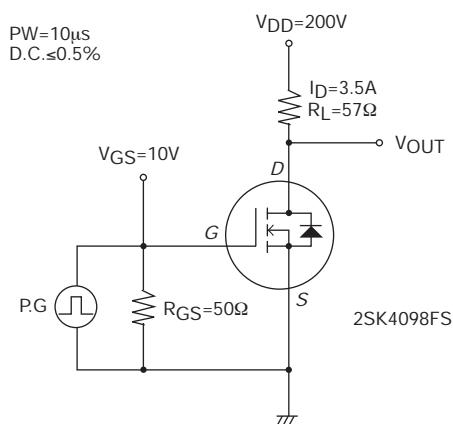
Package Dimensions

unit : mm (typ)

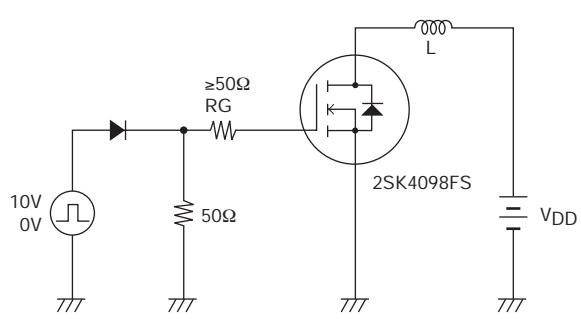
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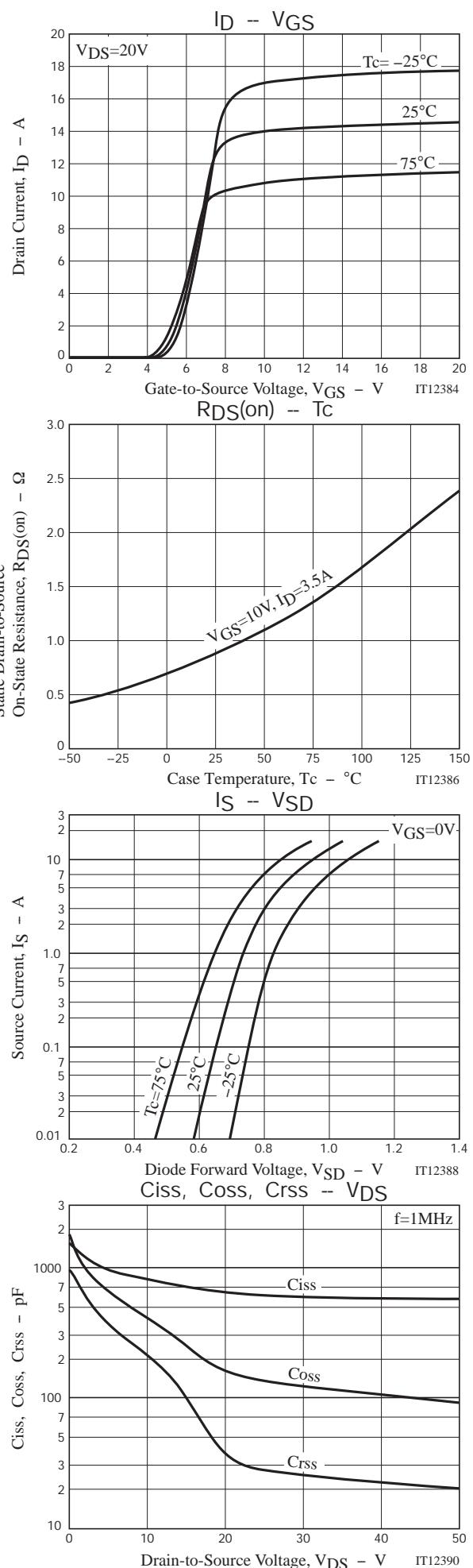
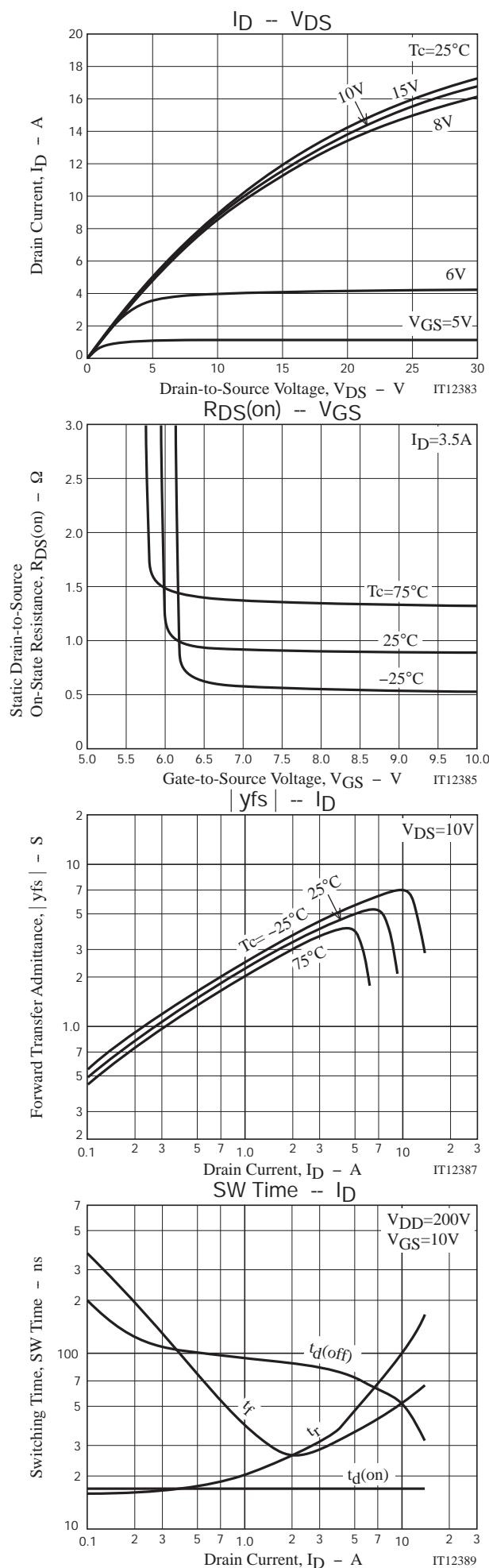
Switching Time Test Circuit

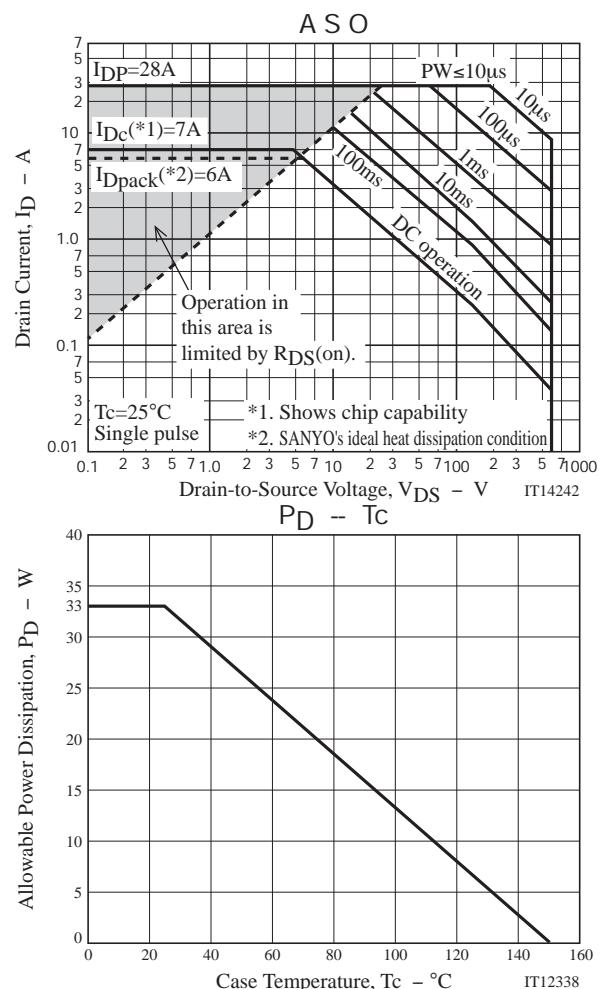
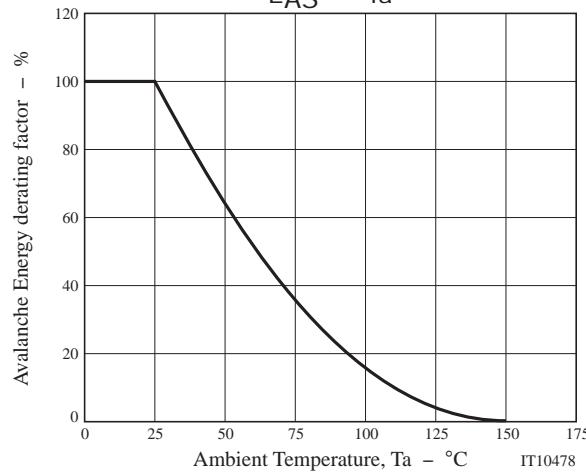
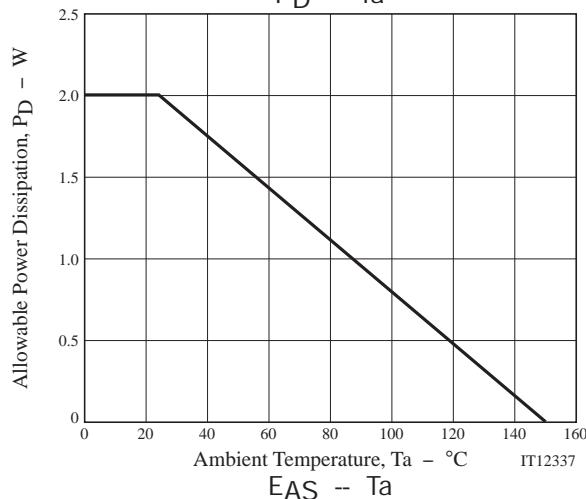
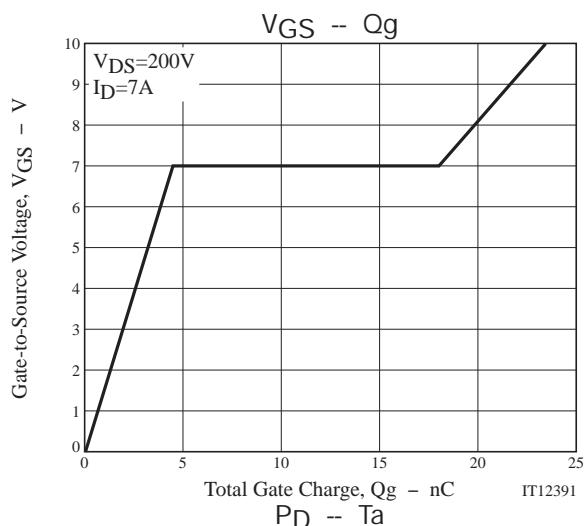


Avalanche Resistance Test Circuit



2SK4098FS





Note on usage : Since the 2SK4098FS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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