



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK4094 — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)1}=3.8m\Omega$ (typ.)
- Input capacitance $C_{iss}=12500pF$ (typ.)
- 4V drive

Specifications

Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		100	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	400	A
Allowable Power Dissipation	PD		1.75	W
		$T_c=25^\circ C$	90	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *1	E_{AS}		850	mJ
Avalanche Current *2	I_{AV}		70	A

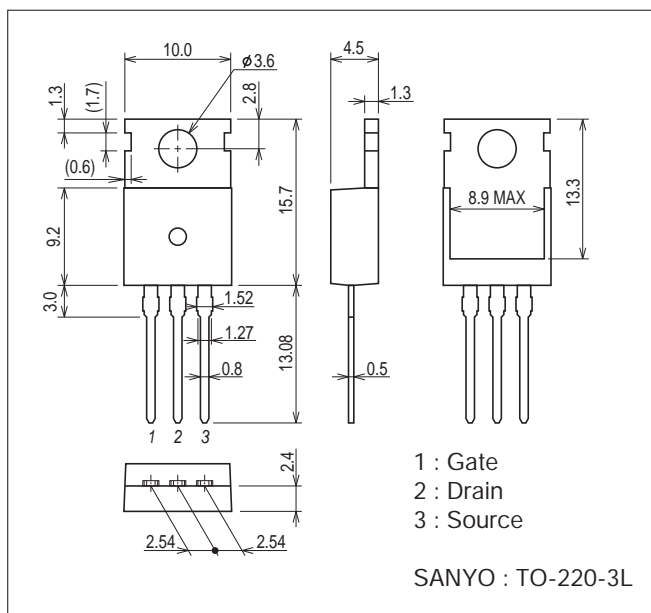
Note : *1 $V_{DD}=30V$, $L=200\mu H$, $I_{AV}=70A$ (Fig.1)

*2 $L \leq 200\mu H$, single pulse

Package Dimensions

unit : mm (typ)

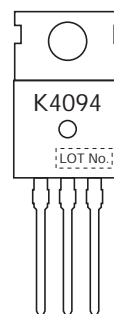
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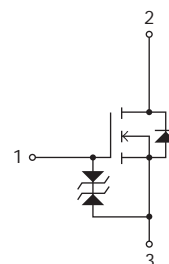
Product & Package Information

- Package : TO-220-3L
- JEITA, JEDEC : SC-46, TO-220AB
- Minimum Packing Quantity : 50 pcs./magazine

Marking



Electrical Connection



2SK4094

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=50A$	45	75		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50A, V_{GS}=10V$		3.8	5.0	$m\Omega$
	$R_{DS(on)2}$	$I_D=50A, V_{GS}=4V$		4.9	7.0	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		12500		pF
Output Capacitance	C_{oss}			1200		pF
Reverse Transfer Capacitance	C_{rss}			950		pF
Turn-ON Delay Time	$t_{d(on)}$			80		ns
Rise Time	t_r	See Fig.2		630		ns
Turn-OFF Delay Time	$t_{d(off)}$			860		ns
Fall Time	t_f			750		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=100A$		220		nC
Gate-to-Source Charge	Q_{gs}			30		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			55		nC
Diode Forward Voltage	V_{SD}	$I_S=100A, V_{GS}=0V$		1.0	1.2	V

Fig.1 Avalanche Resistance Test Circuit

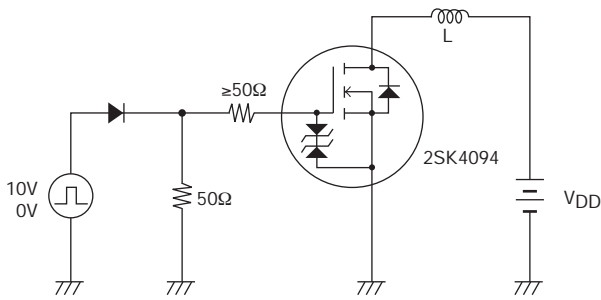
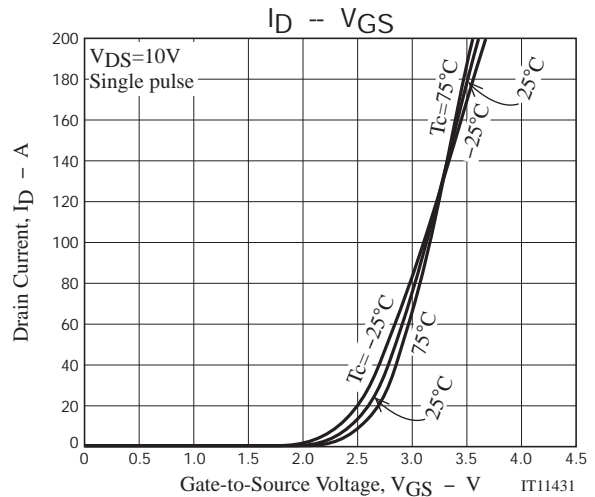
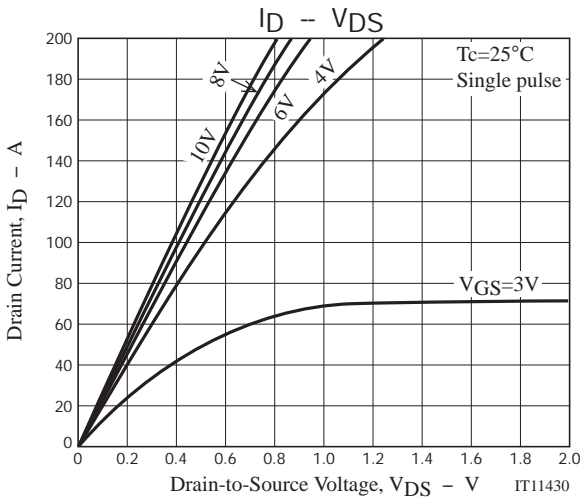
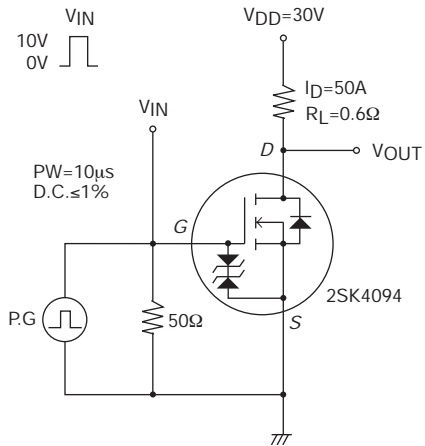
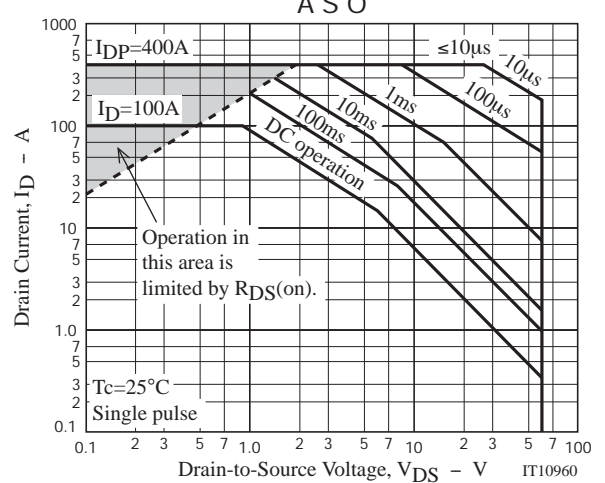
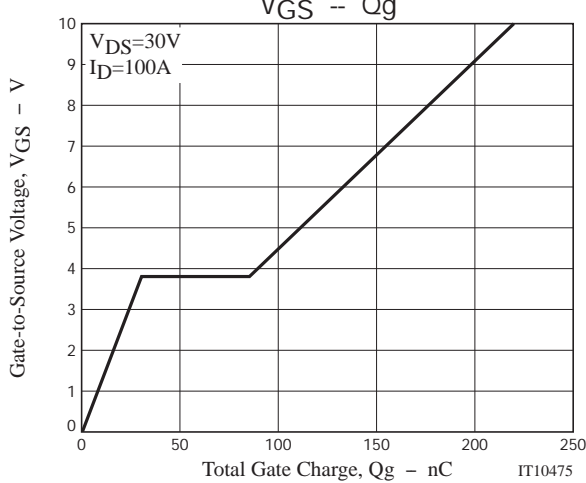
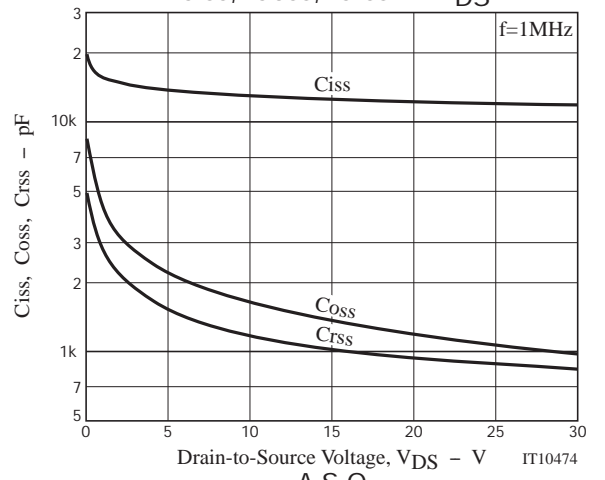
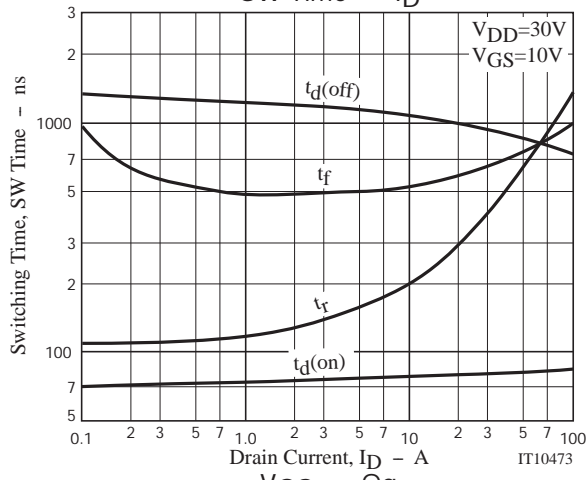
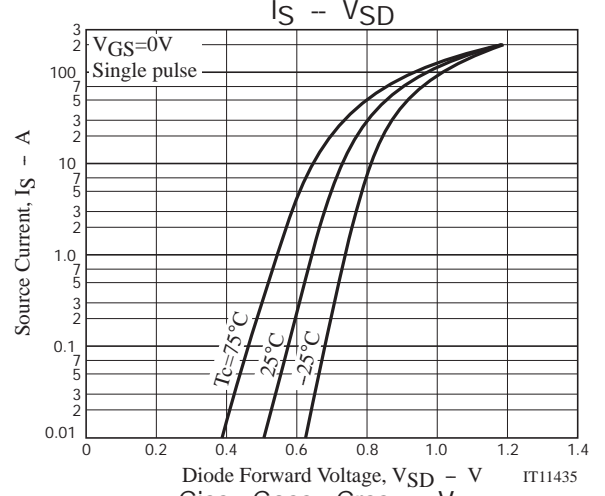
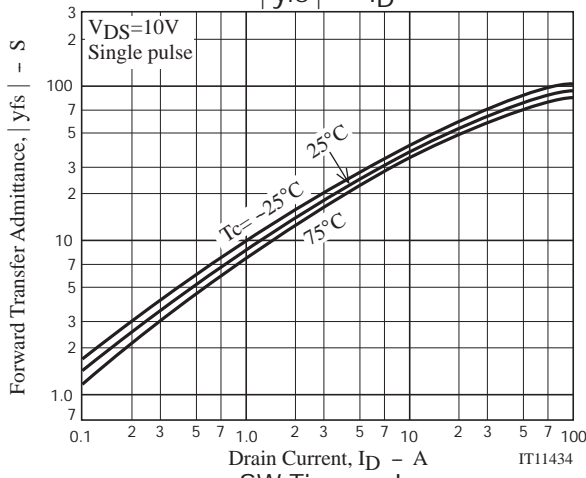
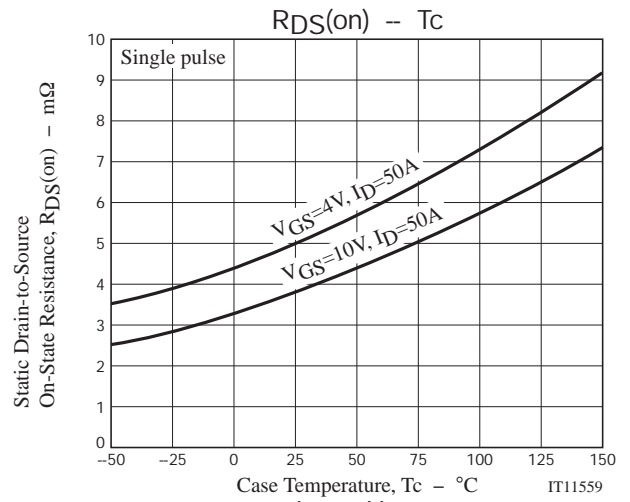
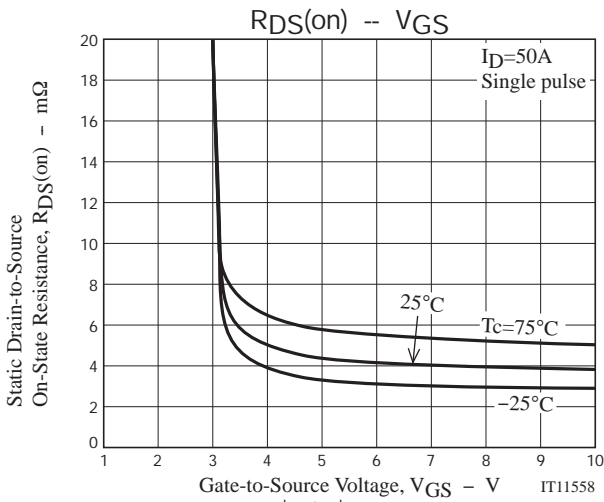
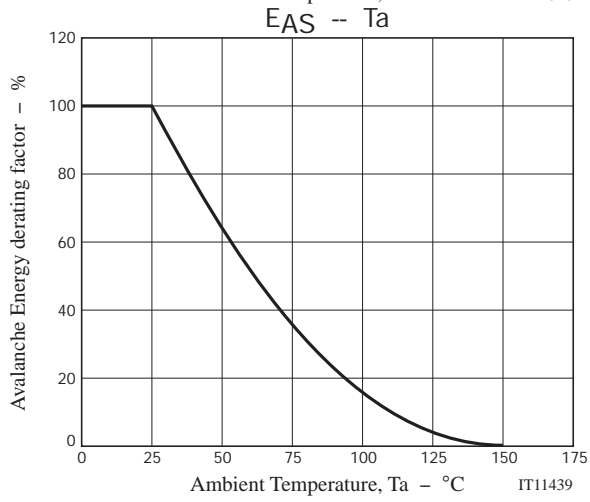
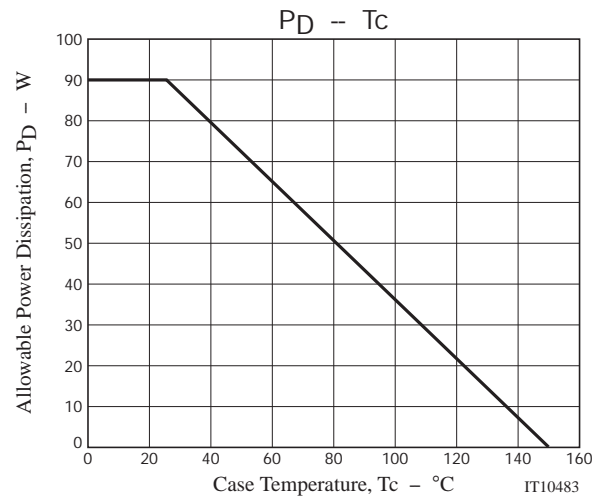
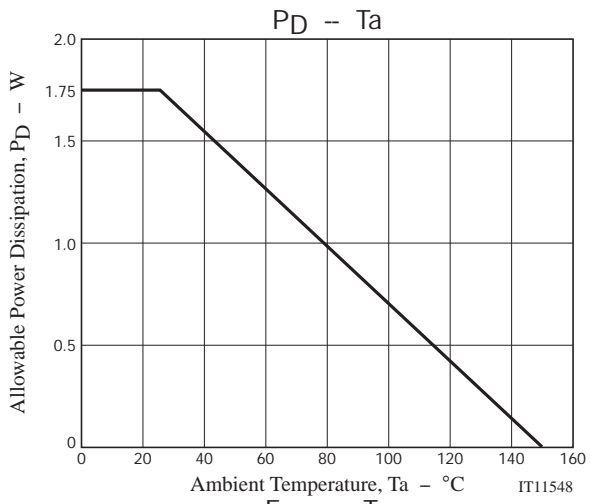


Fig.2 Switching Time Test Circuit





2SK4094



Note on usage : Since the 2SK4094 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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