

DATA SHEET



# N-Channel Silicon MOSFET **2SK3093LS**—General-Purpose Switching Device **Applications**

## Features

- · Low ON-resistance.
- · Low Qg.
- Ultrahigh-Speed Switching Applications.
- · Avalanche resistance guarantee.

# **Specifications**

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		400	V
Gate-to-Source Voltage	VGSS		±30	V
Drain Current (DC)	۱ <sub>D</sub>		3	Α
Drain Current (Pulse)	IDP	PW≤10µs, duty cycle≤1%	12	А
Allowable Power Dissipation	D-		2.0	W
	PD	Tc=25°C	20	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Enargy (Single Pulse) *1	EAS		51.4	mJ
Avalanche Current *2	IAV		3	А

1 V<sub>DD</sub>=50V, L=10mH, I<sub>AV</sub>=3A

\*2 L≤10mH, single pulse

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	400			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =320V, V <sub>GS</sub> =0V			1.0	mA
Gate-to-Source Leakage Current	IGSS	$V_{GS}=\pm 30V, V_{DS}=0V$			±100	nA
Cutoff Voltage	VGS(off)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	3.0		4.0	V
Forward Transfer Admittance	yfs	VDS=10V, ID=1.5A	0.7	1.4		S
Static Drain-to-Source On-State Resistance	RDS(on)	ID=1.5A, VGS=15V		1.8	2.3	Ω

Marking : K3093

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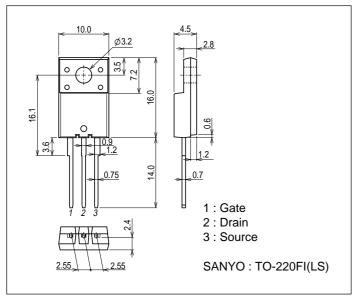
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	VDS=20V, f=1MHz		360		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		90		pF
Reverse Transfer Capacitance	Crss	VDS=20V, f=1MHz		45		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		10		ns
Rise Time	tr	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		28		ns
Fall Time	tf	See specified Test Circuit.		17		ns
Total Gate Charge	Qg	V <sub>DS</sub> =200V, V <sub>GS</sub> =10V, I <sub>D</sub> =3A		10		nC
Diode Forward Voltage	VSD	IS=3A, VGS=0V		0.85	1.2	V

Note : Be careful in handling the 2SK3093LS because it has no protection diode between gate and source.

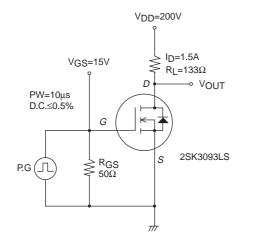
#### **Package Dimensions**

unit : mm (typ)

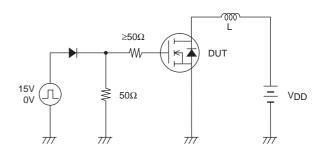
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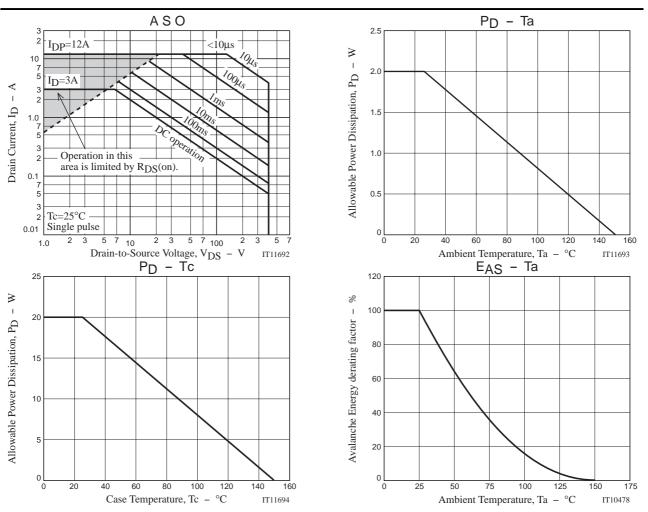


#### **Switching Time Test Circuit**



### **Avalanche Resistance Test Circuit**





Note on usage : Since the 2SK3093LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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