



# 2SK3093LS — N-Channel Silicon MOSFET

## 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	V <sub>DSS</sub>		400	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±30	V
Drain Current (DC)	I <sub>D</sub>		3	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	12	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C	20	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E <sub>AS</sub>		51.4	mJ
Avalanche Current *2	I <sub>AV</sub>		3	A

\*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	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	400			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =320V, V <sub>GS</sub> =0V			1.0	mA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V			±100	nA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	3.0		4.0	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1.5A	0.7	1.4		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =1.5A, V <sub>GS</sub> =15V		1.8	2.3	Ω

Marking : K3093

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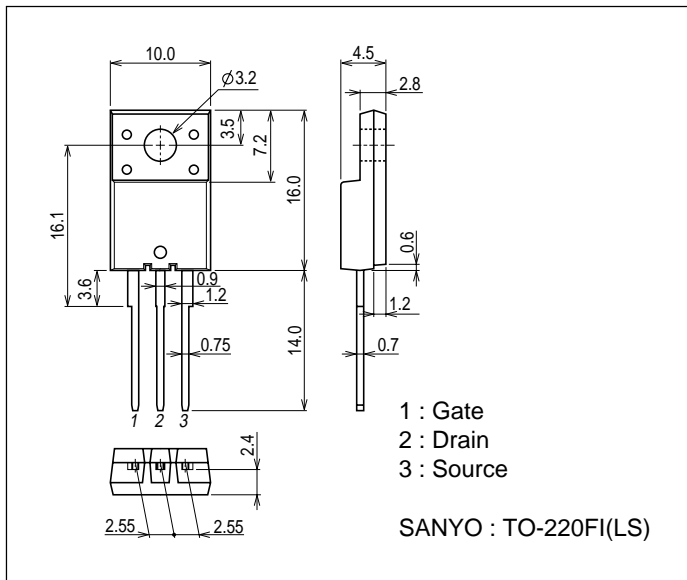
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =20V, f=1MHz		360		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		90		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =20V, f=1MHz		45		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified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

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

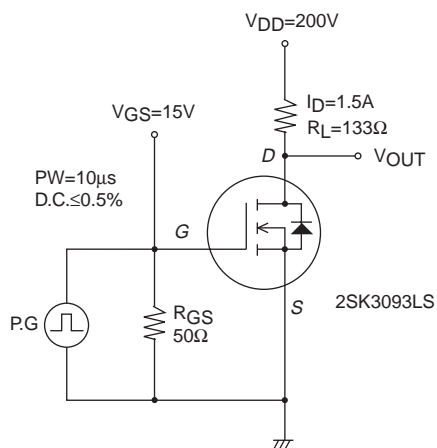
## Package Dimensions

unit : mm (typ)

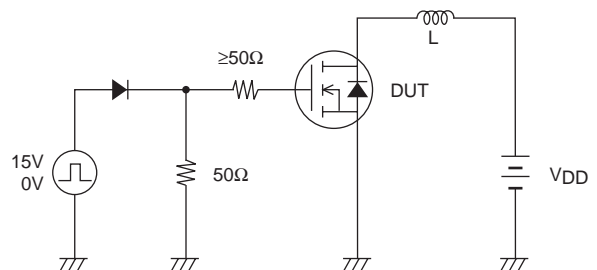
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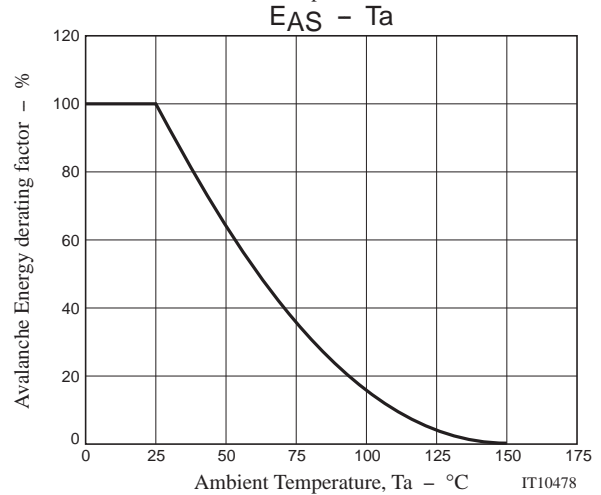
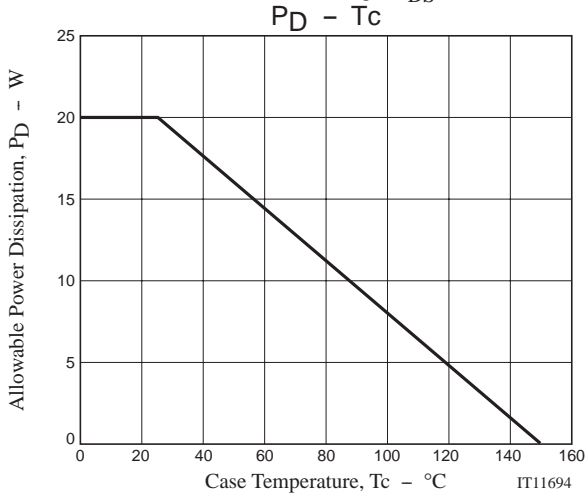
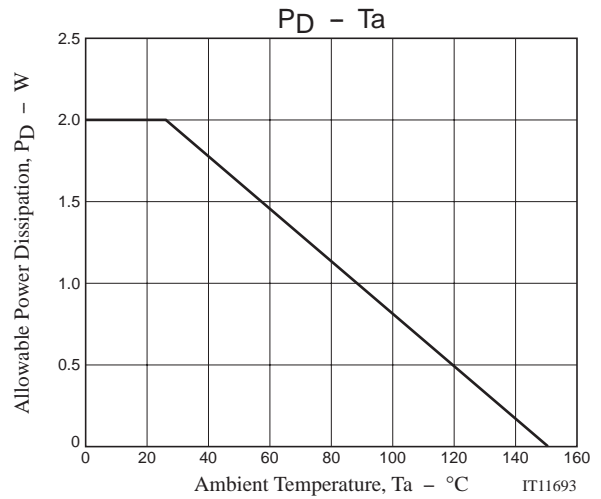
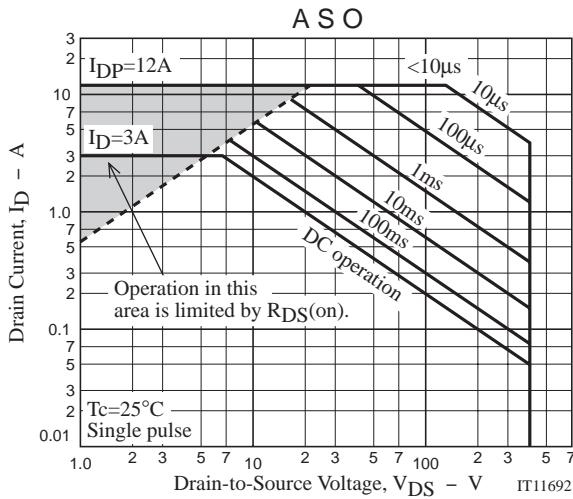
## Switching Time Test Circuit



## Avalanche Resistance Test Circuit



# 2SK3093LS



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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