



# 2SK3101LS — 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>		11	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	44	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C	40	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>		69.1	mJ
Avalanche Current *2	I <sub>AV</sub>		11	A

\*1 V<sub>DD</sub>=50V, L=1mH, I<sub>AV</sub>=11A

\*2 L≤1mH, 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> =0	400			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =320V, V <sub>GS</sub> =0			1.0	mA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0			±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> =8A	4.0	8.0		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =8A, V <sub>GS</sub> =15V		0.32	0.4	Ω

Marking : K3101

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# 2SK3101LS

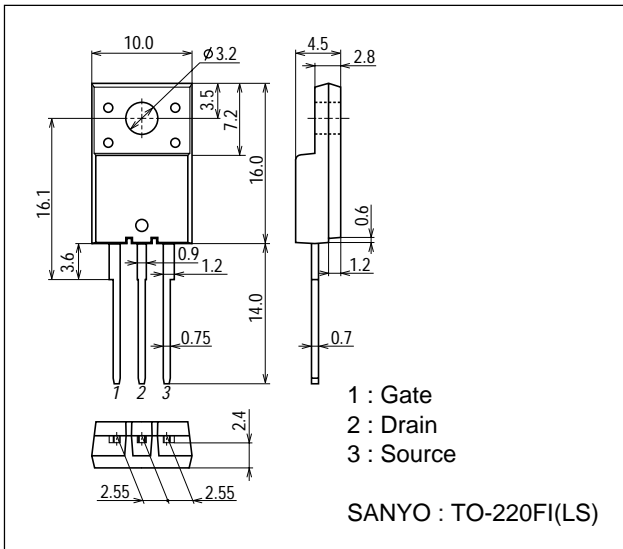
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		1850		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		480		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		240		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		19		ns
Rise Time	$t_r$	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		140		ns
Fall Time	$t_f$	See specified Test Circuit.		41		ns
Total Gate Charge	Qg	$V_{DS}=200V, V_{GS}=10V, I_D=11A$		58		nC
Diode Forward Voltage	VSD	$I_S=11A, V_{GS}=0$		0.9	1.2	V

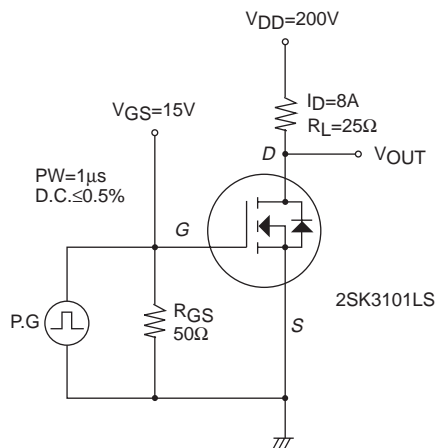
## Package Dimensions

unit : mm

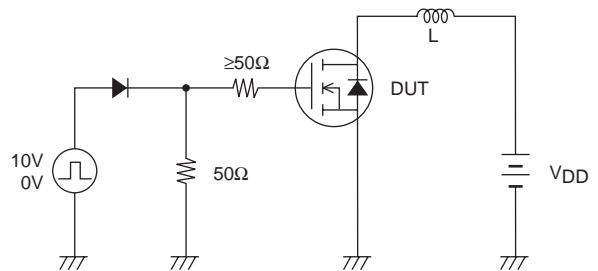
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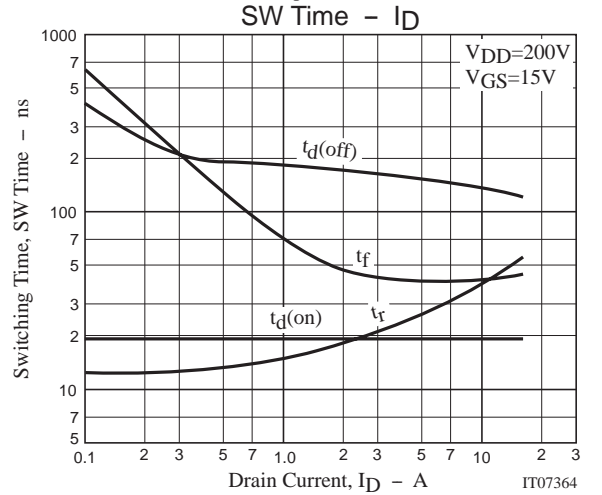
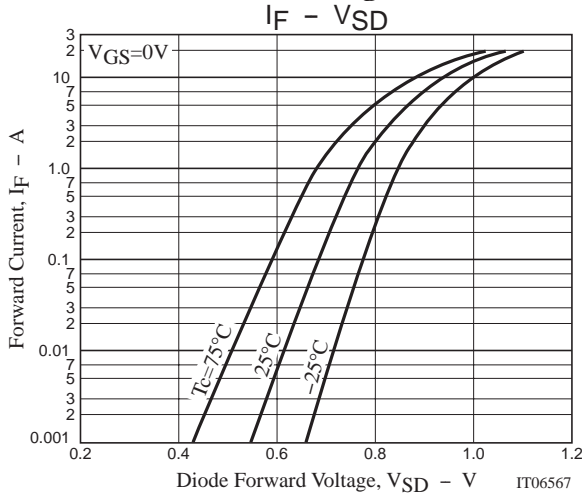
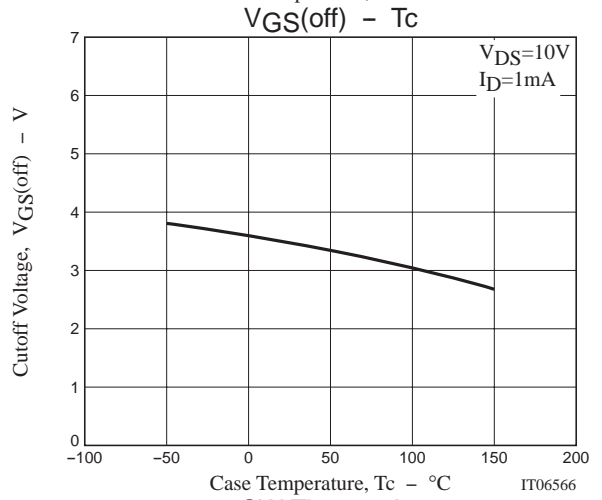
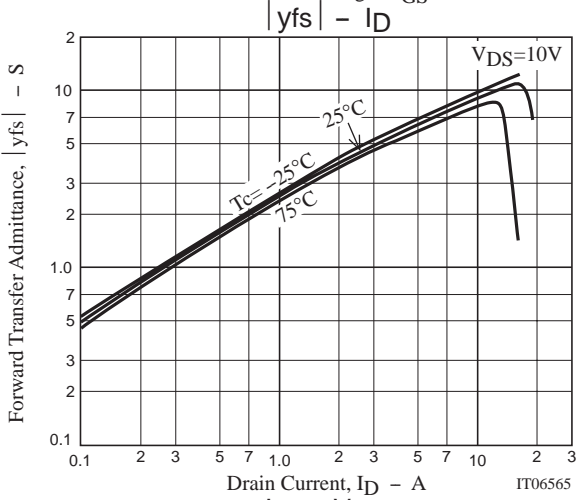
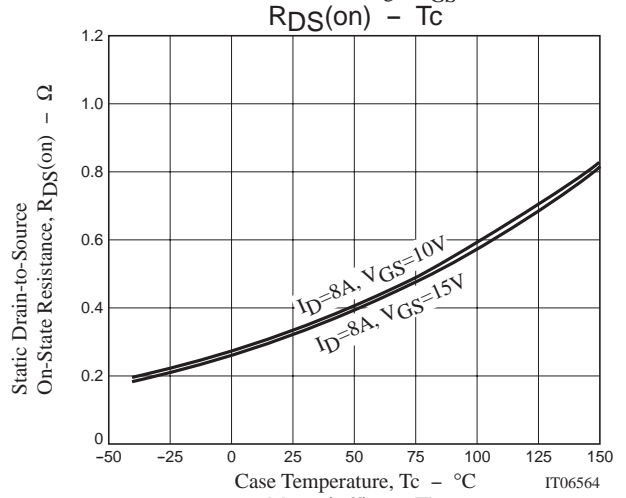
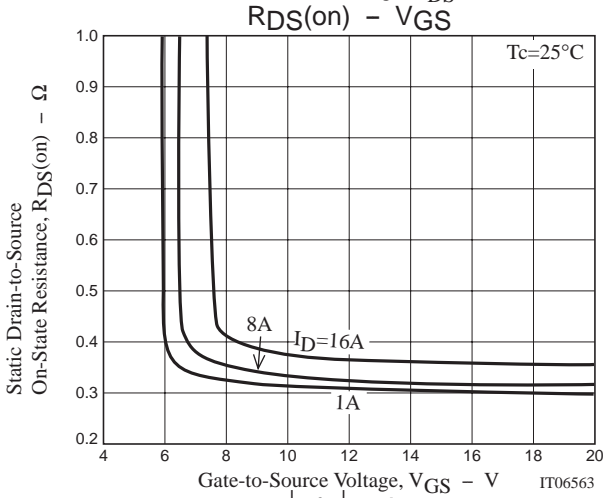
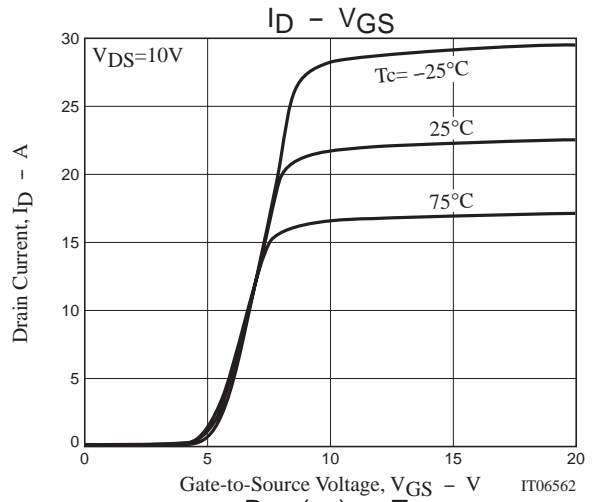
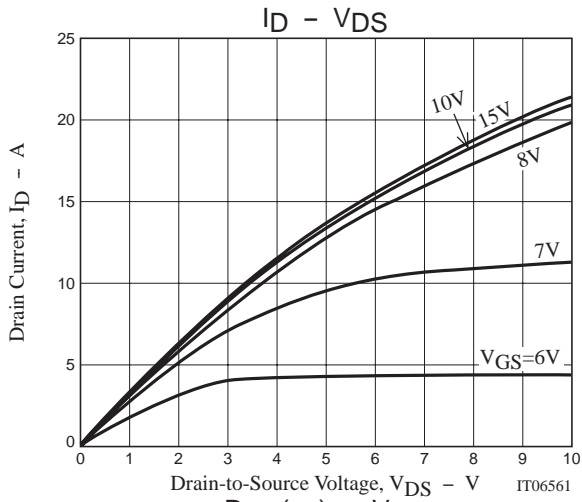
## Switching Time Test Circuit



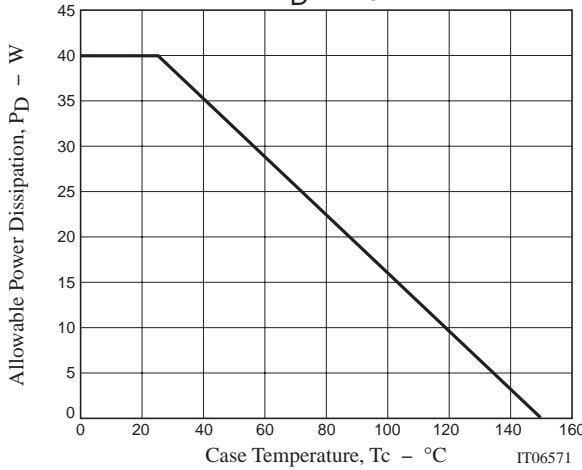
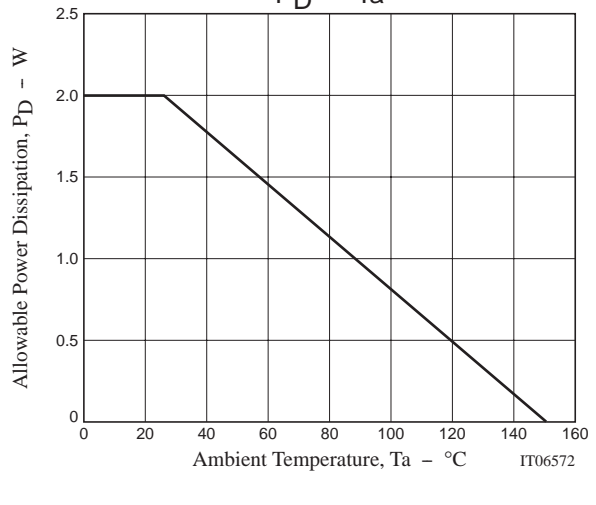
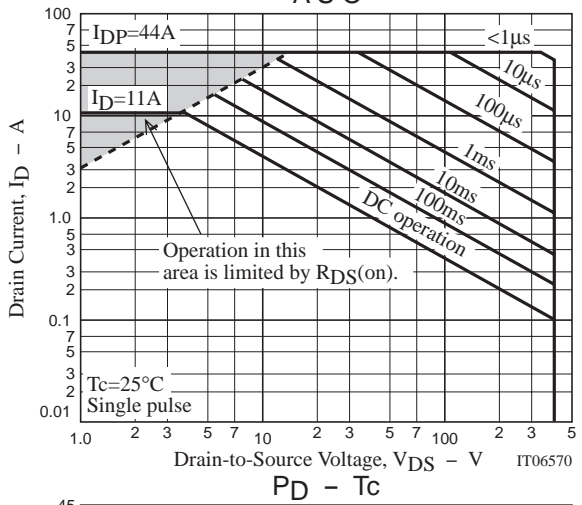
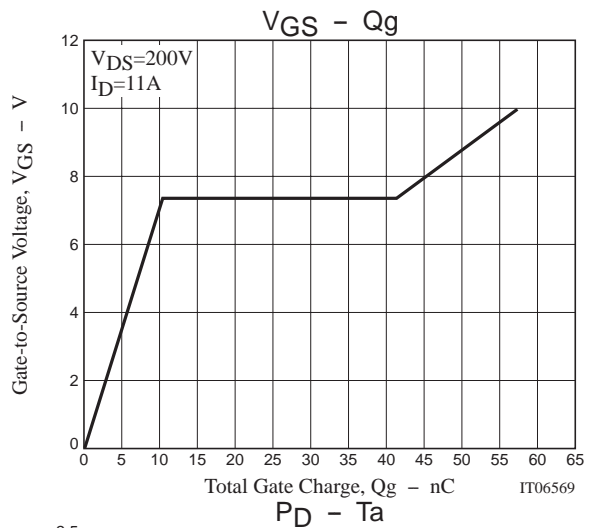
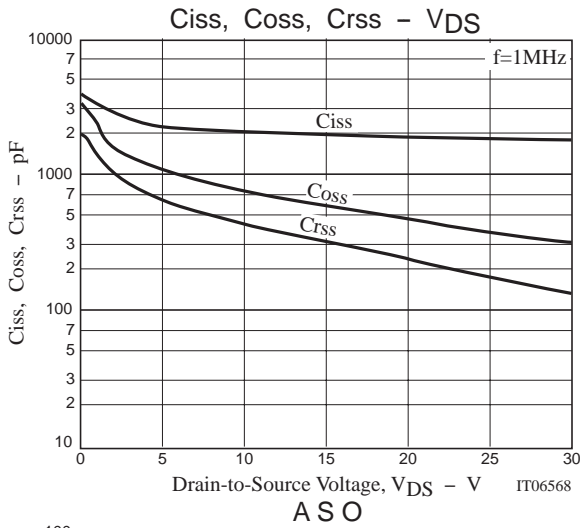
## Unclamped Inductive Test Circuit



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Note on usage : Be careful in handling the 2SK3101LS because it has no protection diode between gate and source.

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