



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK4196LS — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)}=1.2\Omega$ (typ.)
- Input capacitance $C_{iss}=360pF$
- 10V drive

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		500	V
Gate-to-Source Voltage	V_{GSS}		± 30	V
Drain Current (DC)	I_{Dc}^{*1}	Limited only by maximum temperature $T_{ch}=150^\circ C$	5.5	A
	I_{Dpack}^{*2}	$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	5.0	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	21	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	30	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *4	EAS		83	mJ
Avalanche Current *5	I_{AV}		5.5	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.

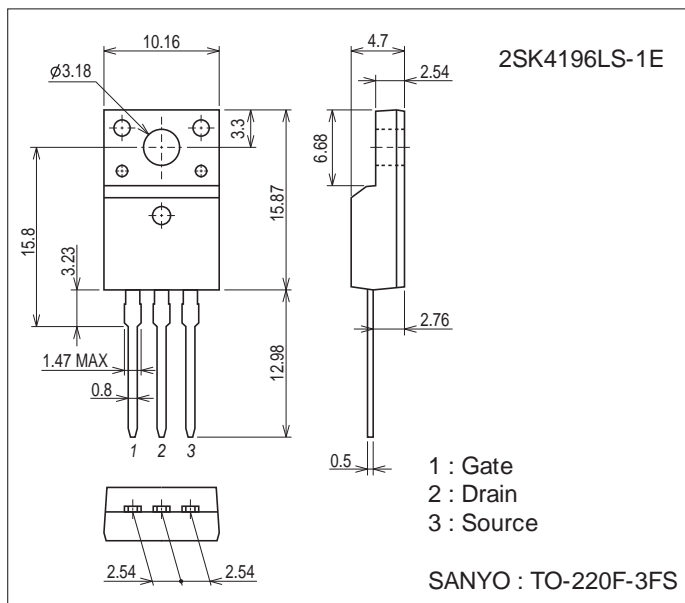
*4 $V_{DD}=50V$, $L=5mH$, $I_{AV}=5.5A$ (Fig.1)

*5 $L \leq 5mH$, single pulse

Package Dimensions

unit : mm (typ)

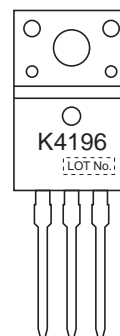
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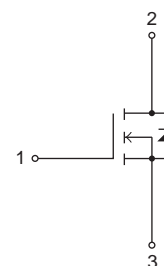
Product & Package Information

- Package : TO-220F-3FS
- JEITA, JEDEC : SC-67
- Minimum Packing Quantity : 50 pcs./magazine

Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

<http://www.sanyosemi.com/en/network/>

2SK4196LS

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=10mA, VGS=0V	500			V	
Zero-Gate Voltage Drain Current	IDSS	VDS=400V, VGS=0V			100	μA	
Gate-to-Source Leakage Current	IGSS	VGS=±30V, VDS=0V			±100	nA	
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	3		5	V	
Forward Transfer Admittance	yfs	VDS=10V, ID=2.8A	1.3	2.5		S	
Static Drain-to-Source On-State Resistance	RDS(on)	ID=2.8A, VGS=10V		1.2	1.56	Ω	
Input Capacitance	Ciss	VDS=30V, f=1MHz		360		pF	
Output Capacitance	Coss				77		pF
Reverse Transfer Capacitance	Crss				17		pF
Turn-ON Delay Time	td(on)	See Fig.2		13		ns	
Rise Time	tr				32		ns
Turn-OFF Delay Time	td(off)				39		ns
Fall Time	tf				18		ns
Total Gate Charge	Qg	VDS=200V, VGS=10V, ID=5.5A		14.6		nC	
Gate-to-Source Charge	Qgs				3.2		nC
Gate-to-Drain "Miller" Charge	Qgd				8.8		nC
Diode Forward Voltage	VSD	IS=5.5A, VGS=0V		0.9	1.2	V	

Fig.1 Unclamped Inductive Switching Test Circuit

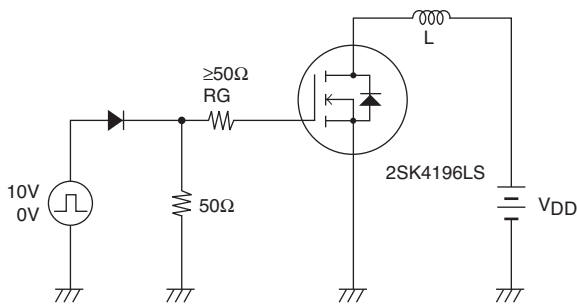
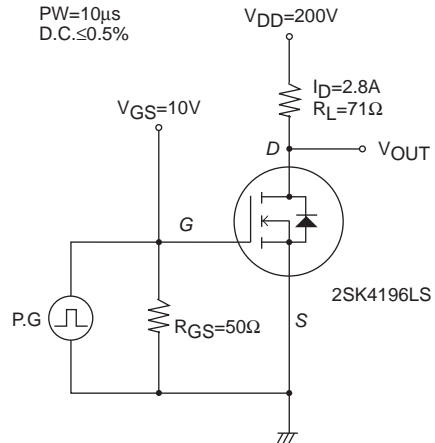


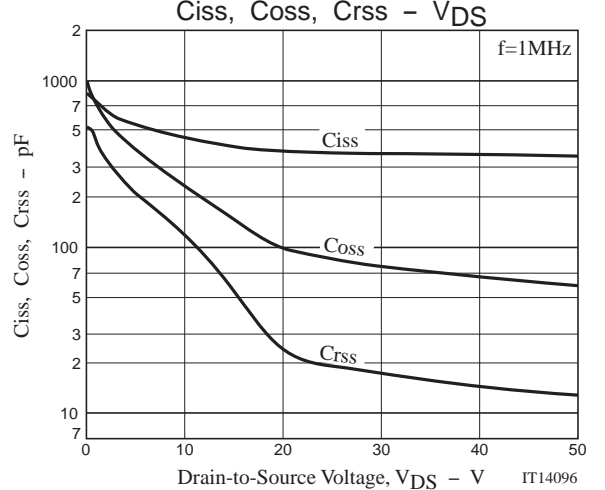
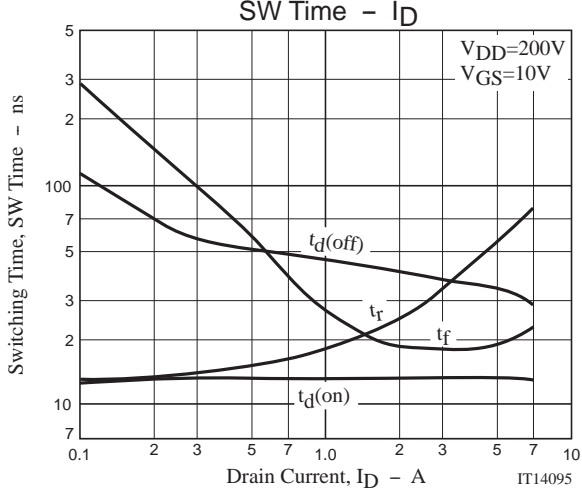
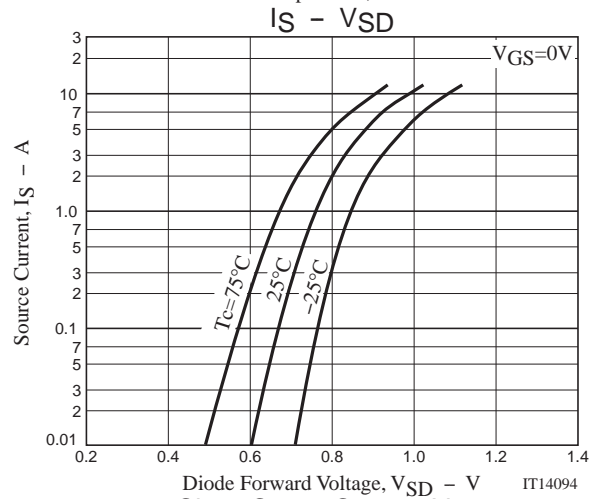
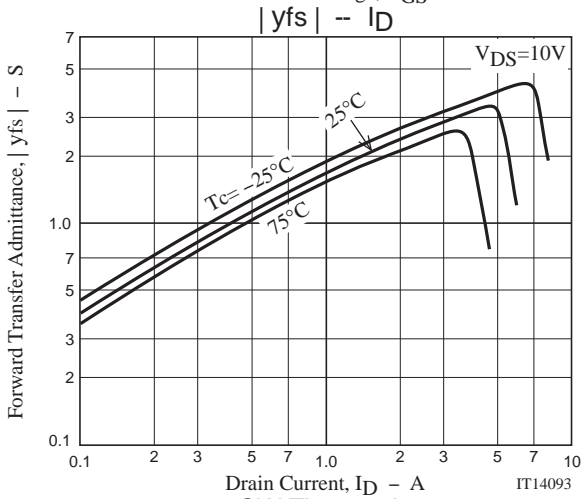
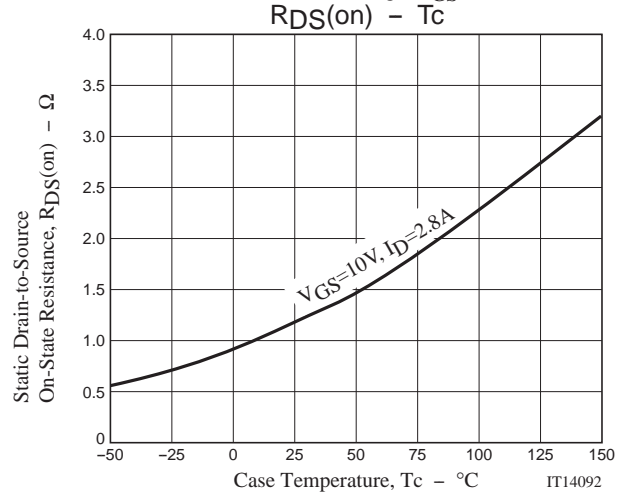
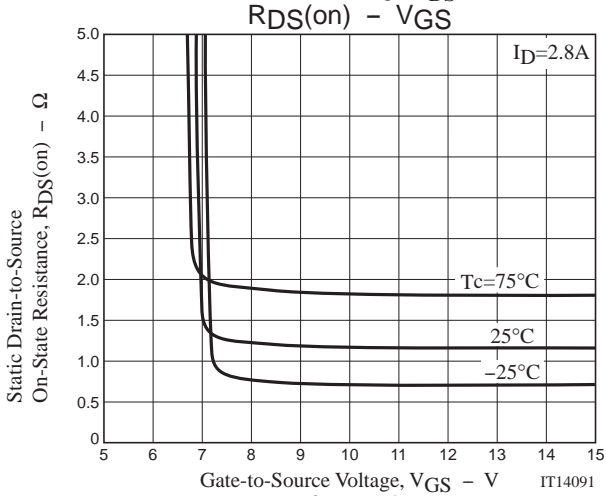
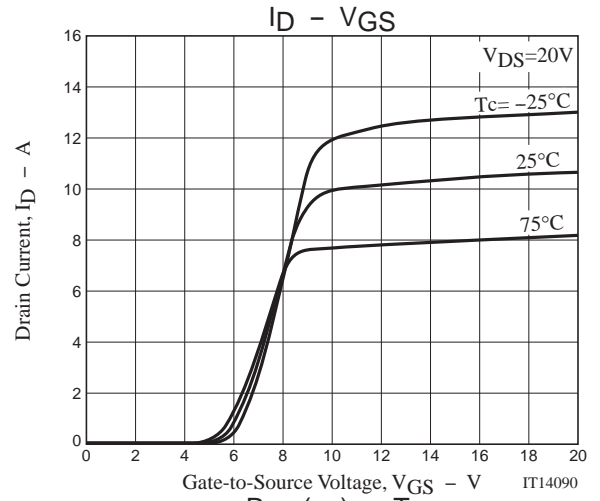
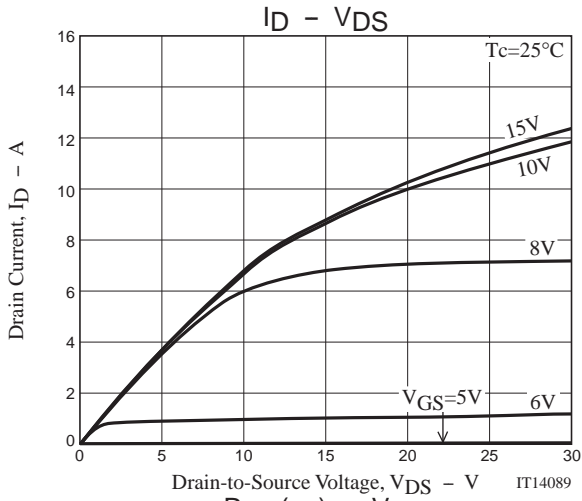
Fig.2 Switching Time Test Circuit



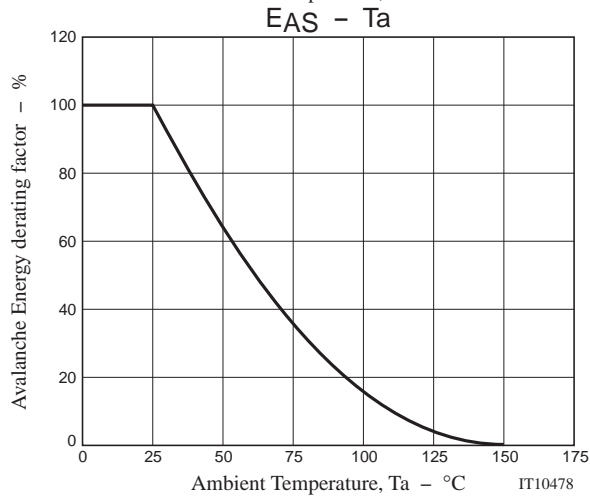
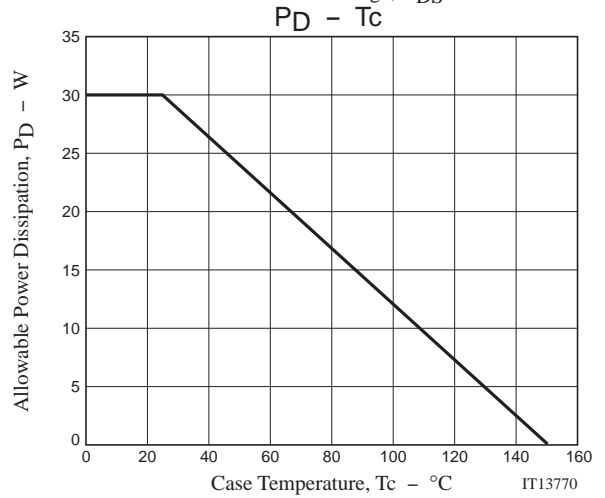
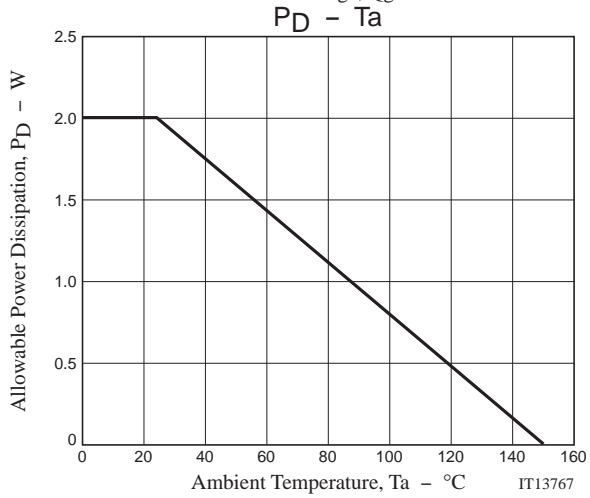
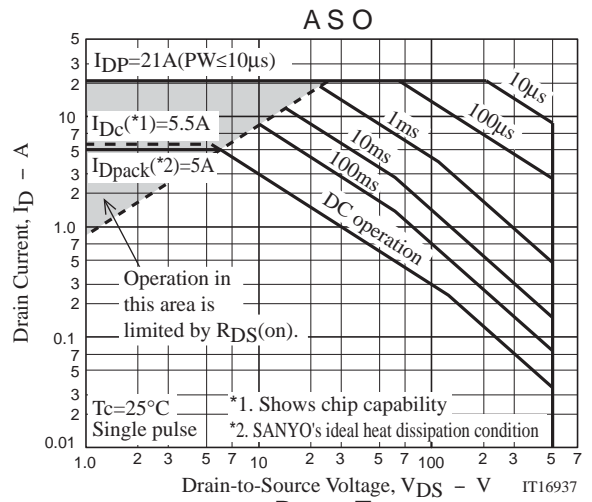
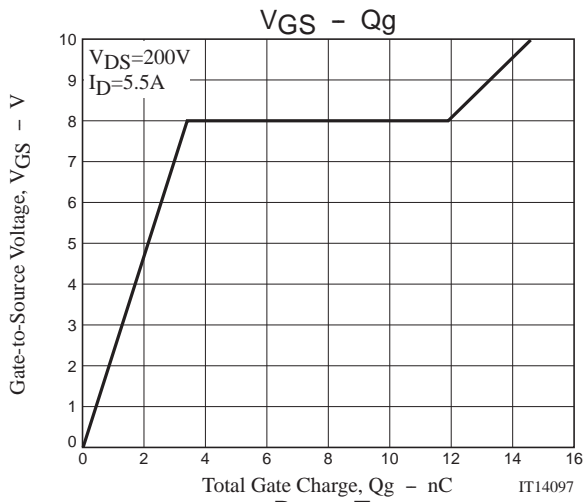
Ordering Information

Device	Package	Shipping	memo
2SK4196LS-1E	TO-220F-3FS	50pcs./magazine	Pb Free

2SK4196LS



2SK4196LS



2SK4196LS

Magazine Specification

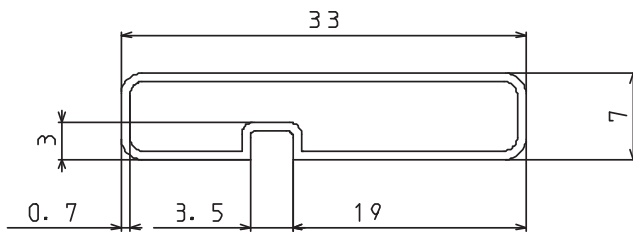
2SK4196LS-1E

1. Packing Format

Package Name	Magazine Name	Maximum Number of devices contained (pcs)			Packing format	
		Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-220F-3FS	TO-220F	50	1,000	4,000	SPD-0V0001 20 magazines contained Dimensions:mm (external) 568×150×55	SPT-081029 4 inner boxes contained Dimensions:mm (external) 590×225×178

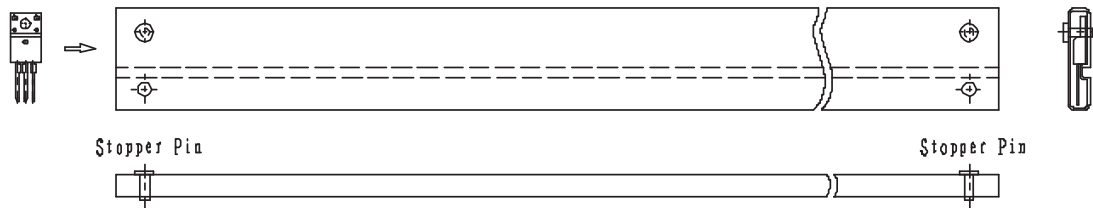
2. Magazine dimensions

(unit:mm)

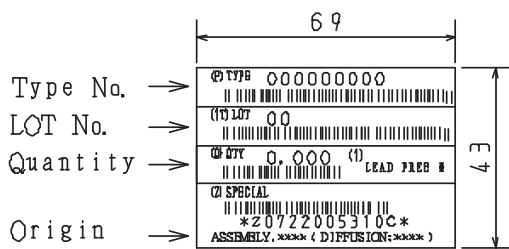


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

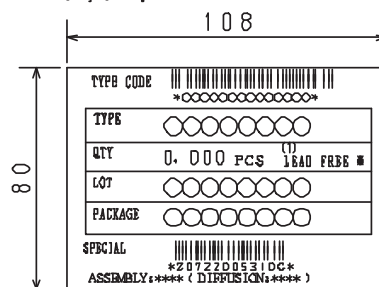


4. Inner box label (unit:mm)



5. Outer box label (unit:mm)

It is a label at the time of factory shipments.
 The form of a label may change in physical
 distribution process.



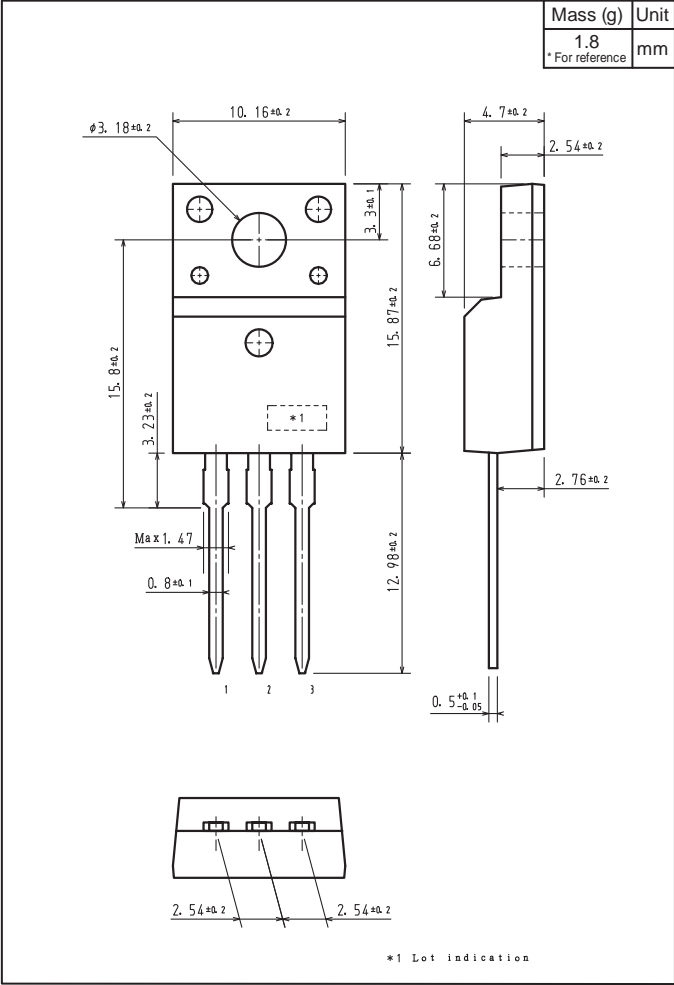
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2SK4196LS

Outline Drawing
2SK4196LS-1E



Note on usage : Since the 2SK4196LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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