



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SK4096LS — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS(on)}=0.65\Omega$ (typ.)
- 10V drive
- Input capacitance $C_{iss}=600pF$

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 $T_{ch}=150^\circ C$	8	A
		$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	7.1	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	32	A
Allowable Power Dissipation	PD		2.0	W
		$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	33	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *4	EAS		354	mJ
Avalanche Current *5	I _{AV}		8	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.

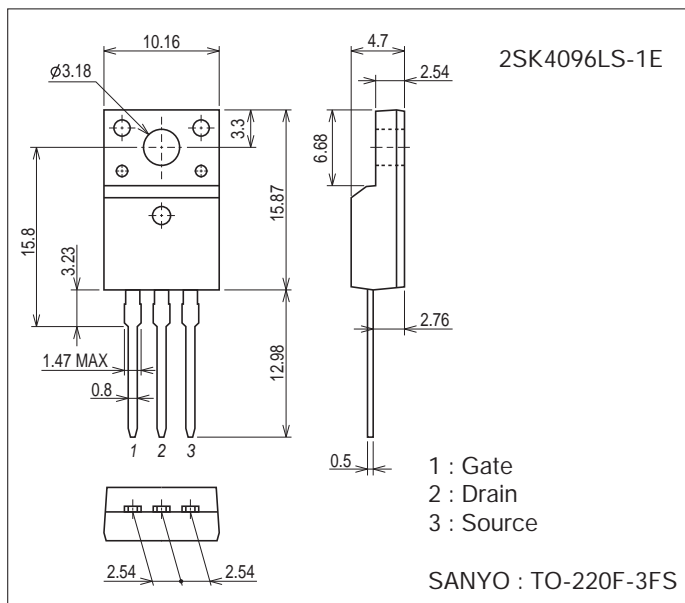
*4 $V_{DD}=50V$, $L=10mH$, $I_{AV}=8A$ (Fig.1)

*5 $L \leq 10mH$, single pulse

Package Dimensions

unit : mm (typ)

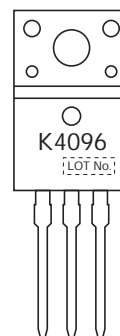
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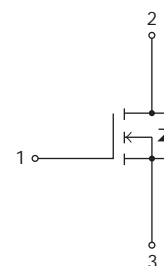
Product & Package Information

- 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/>

2SK4096LS

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0V$	500			V	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=400V, V_{GS}=0V$			100	μA	
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V, V_{DS}=0V$			± 100	nA	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	3		5	V	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=4A$	2.2	4.5		S	
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=4A, V_{GS}=10V$		0.65	0.85	Ω	
Input Capacitance	C_{iss}	$V_{DS}=30V, f=1MHz$		600		pF	
Output Capacitance	C_{oss}				130		pF
Reverse Transfer Capacitance	C_{rss}				28		pF
Turn-ON Delay Time	$t_{d(on)}$	See Fig.2		18.5		ns	
Rise Time	t_r			46		ns	
Turn-OFF Delay Time	$t_{d(off)}$			75		ns	
Fall Time	t_f			33		ns	
Total Gate Charge	Q_g	$V_{DS}=200V, V_{GS}=10V, I_D=8A$		24		nC	
Gate-to-Source Charge	Q_{gs}			4.5		nC	
Gate-to-Drain "Miller" Charge	Q_{gd}			14		nC	
Diode Forward Voltage	V_{SD}	$I_S=8A, V_{GS}=0V$		0.9	1.2	V	

Fig.1 Unclamped Inductive Switching Test Circuit

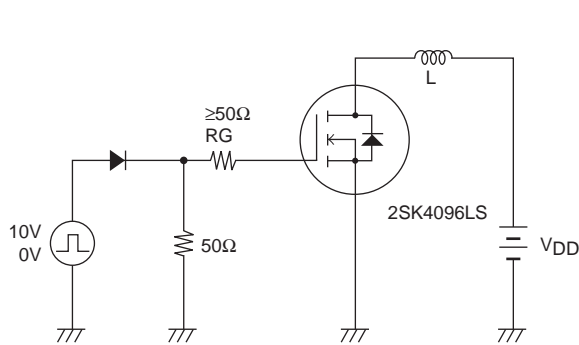
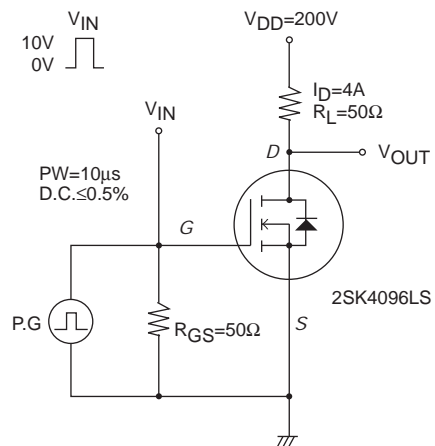


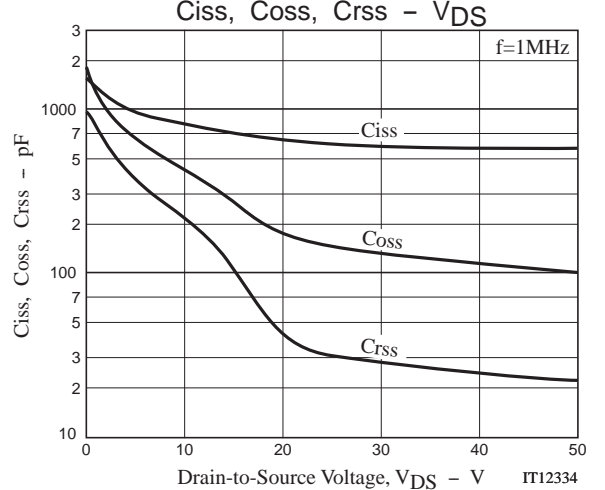
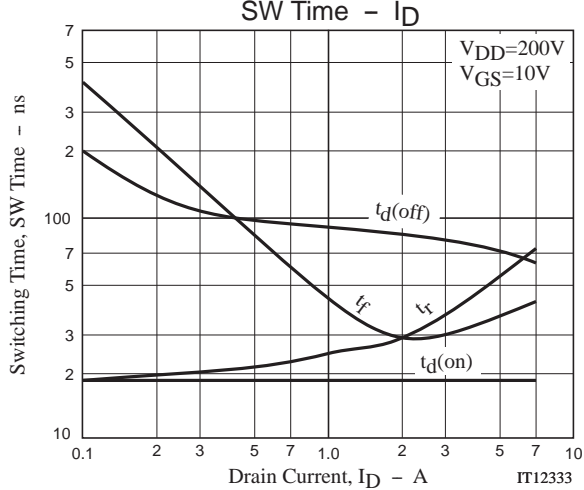
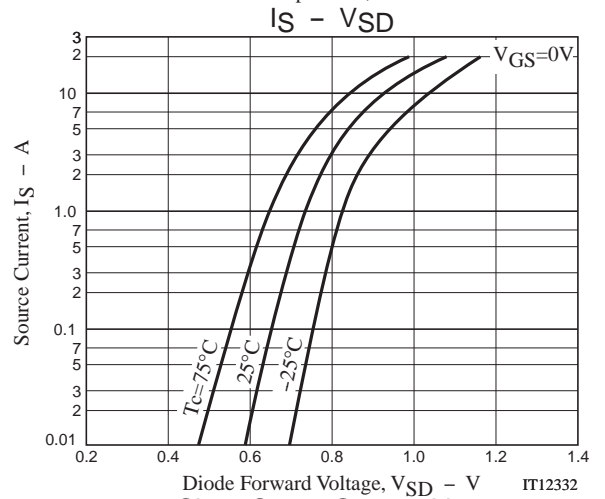
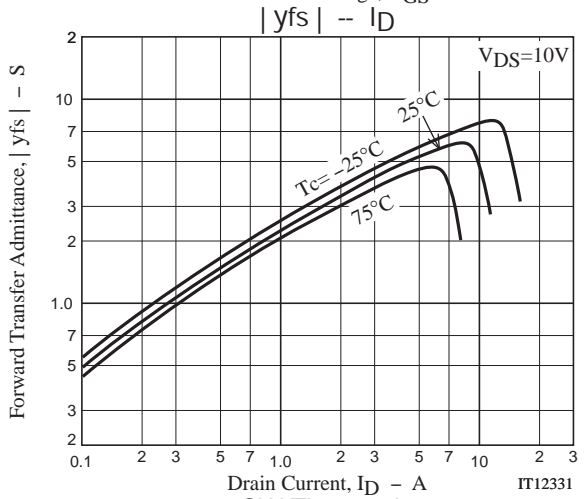
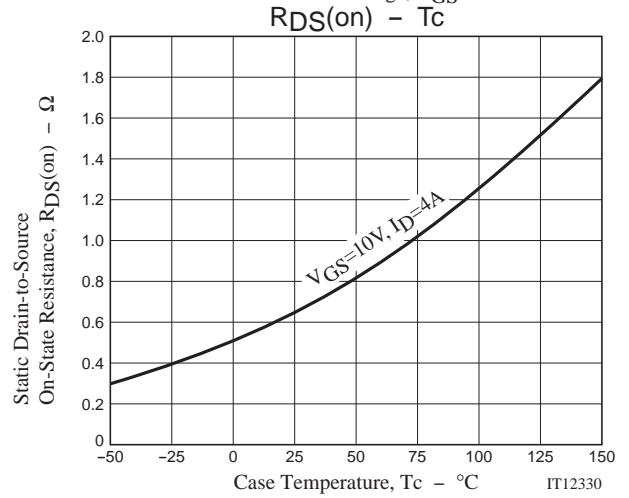
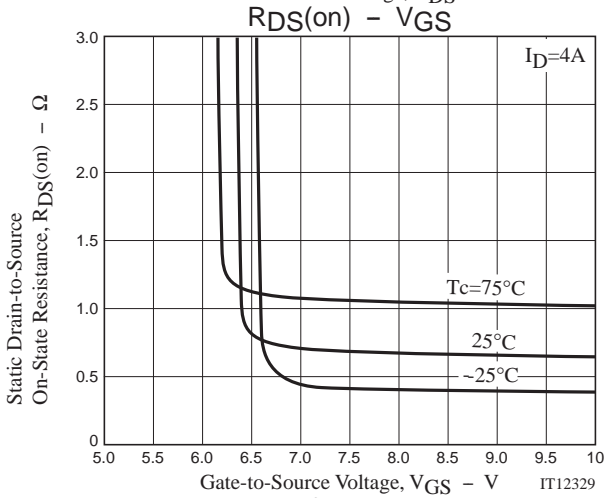
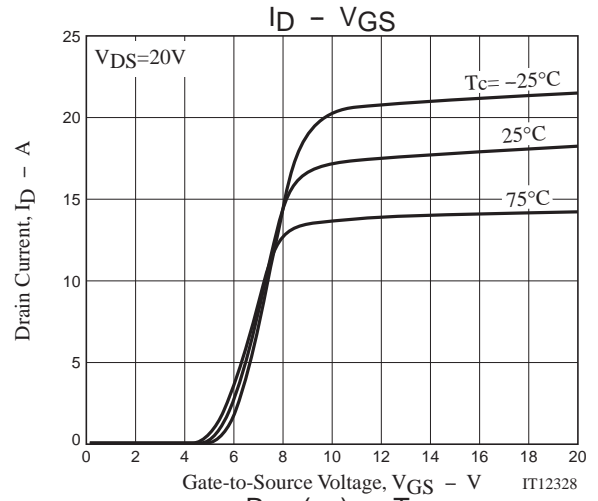
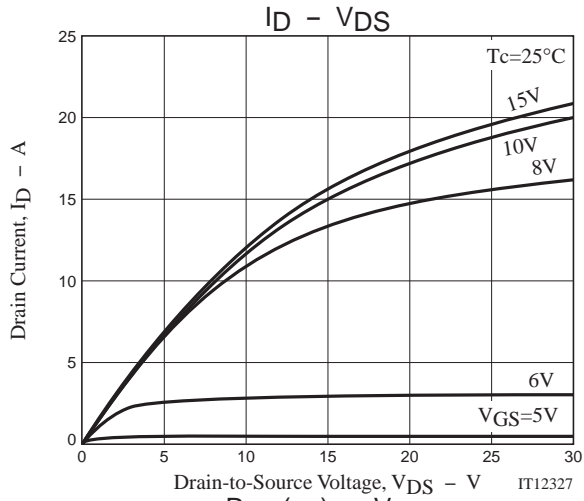
Fig.2 Switching Time Test Circuit



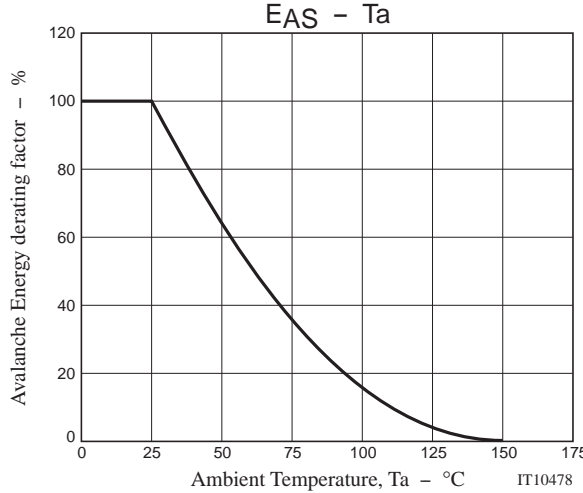
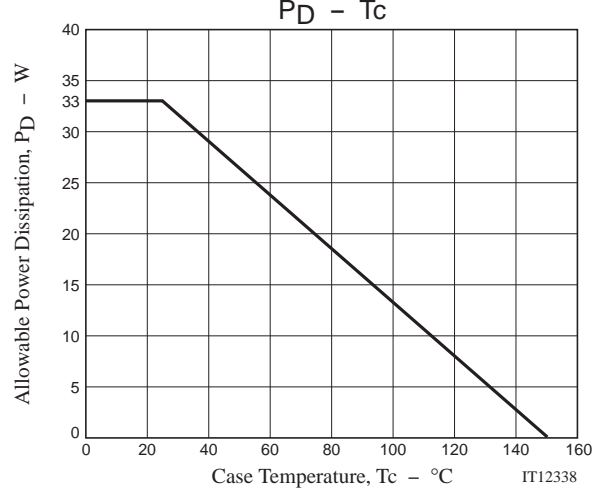
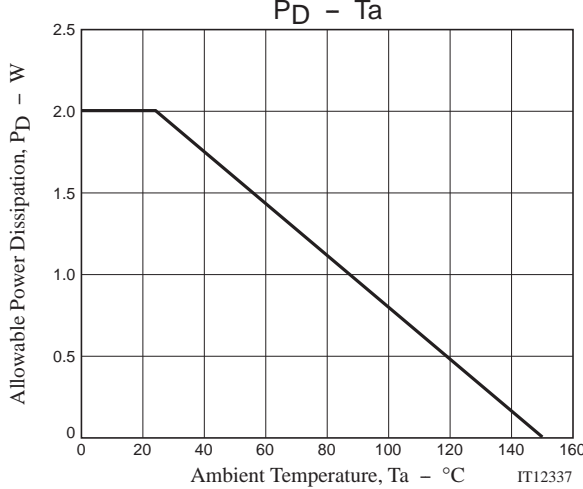
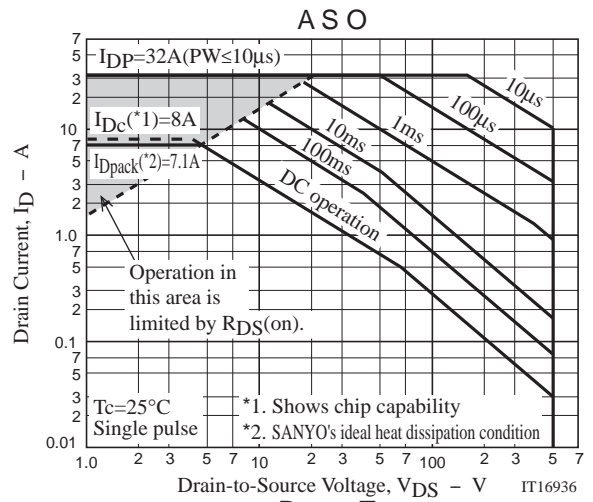
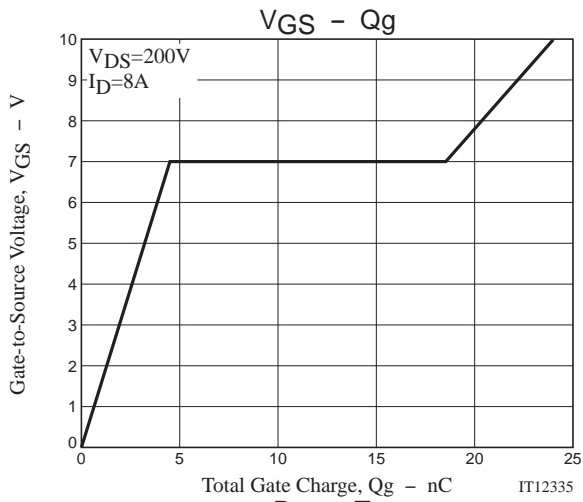
Ordering Information

Device	Package	Shipping	memo
2SK4096LS-1E	TO-220F-3FS	50pcs./magazine	Pb Free

2SK4096LS



2SK4096LS



2SK4096LS

Magazine Specification

2SK4096LS-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

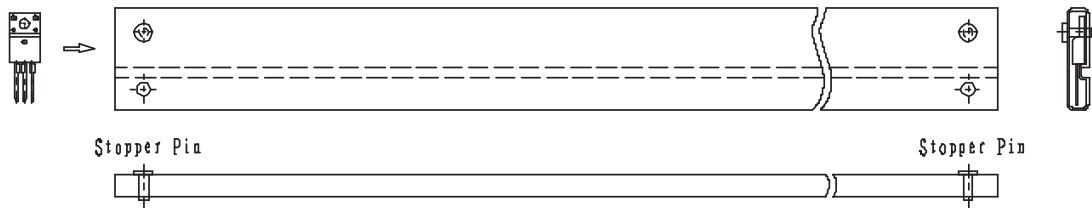
2. Magazine dimensions

(unit:mm)

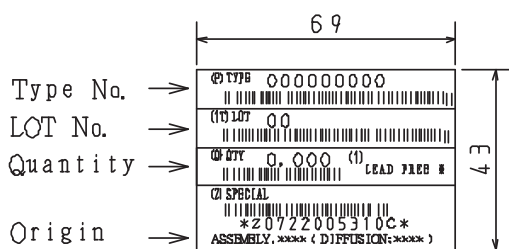


Tolerance=±0.3mm
 Thickness=0.7±0.2mm
 Length =532.5±2mm
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

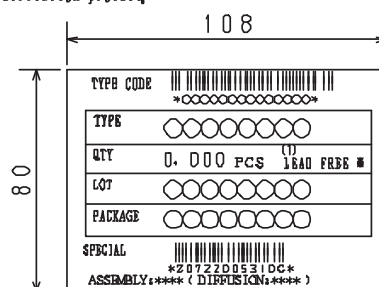


4. Inner box label (unit:mm)



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.



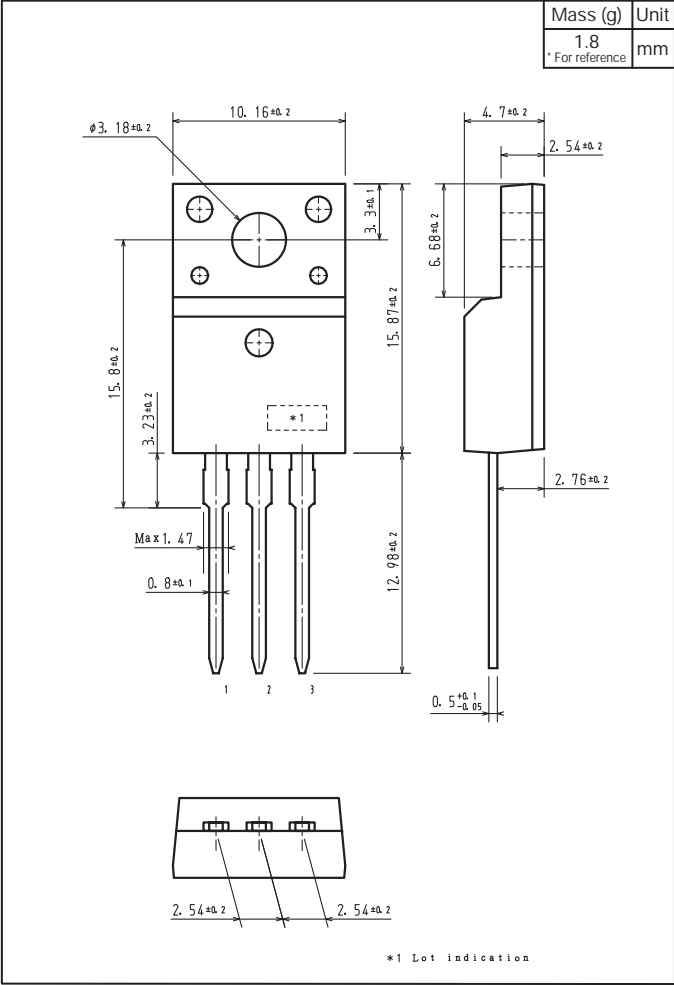
NOTE (1)

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

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2SK4096LS

Outline Drawing
2SK4096LS-1E



Note on usage : Since the 2SK4096LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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