



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SK4085LS — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)}=0.33\Omega$  (typ.)
- Input capacitance  $C_{iss}=1200pF$  (typ.)
- 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	$V_{GSS}$		$\pm 30$	V
Drain Current (DC)	$I_{DC}^*1$	Limited only by maximum temperature $T_{ch}=150^\circ C$	16	A
	$I_{Dpack}^*2$	$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	11	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	$P_D$		2.0	W
		$T_c=25^\circ C$ (SANYO's ideal heat dissipation condition)*3	40	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$
Avalanche Energy (Single Pulse) *4	$E_{AS}$		141	mJ
Avalanche Current *5	$I_{AV}$		16	A

\*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.

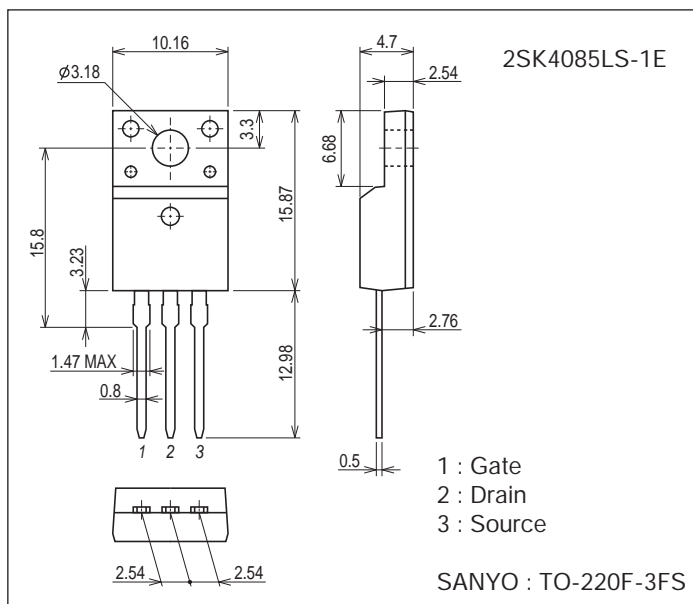
\*4  $V_{DD}=50V$ ,  $L=1mH$ ,  $I_{AV}=16A$  (Fig.1)

\*5  $L \leq 1mH$ , Single pulse

### Package Dimensions

unit : mm (typ)

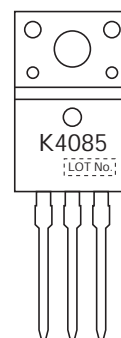
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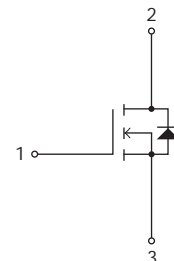
### Product & Package Information

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

### Marking



### Electrical Connection



# 2SK4085LS

## 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=8A	4.5	9		S
Static Drain-to-Source On-State Resistance	RDS(on)	ID=8A, VGS=10V		0.33	0.43	Ω
Input Capacitance	Ciss	VDS=30V, f=1MHz		1200		pF
Output Capacitance	Coss			250		pF
Reverse Transfer Capacitance	Crss			55		pF
Turn-ON Delay Time	td(on)	See Fig.2		26.5		ns
Rise Time	tr			78		ns
Turn-OFF Delay Time	td(off)			146		ns
Fall Time	tf			57		ns
Total Gate Charge	Qg	VDS=200V, VGS=10V, ID=16A		46.6		nC
Gate-to-Source Charge	Qgs			8.2		nC
Gate-to-Drain "Miller" Charge	Qgd			27.4		nC
Diode Forward Voltage	VSD	IS=16A, VGS=0V		0.95	1.3	V

Fig.1 Avalanche Resistance Test Circuit

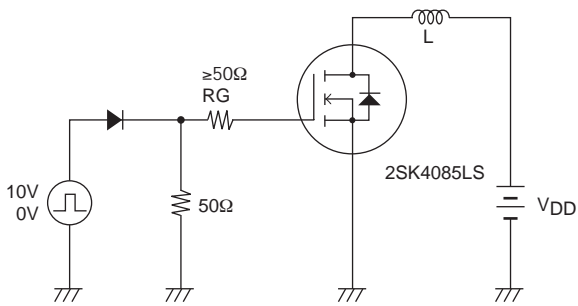
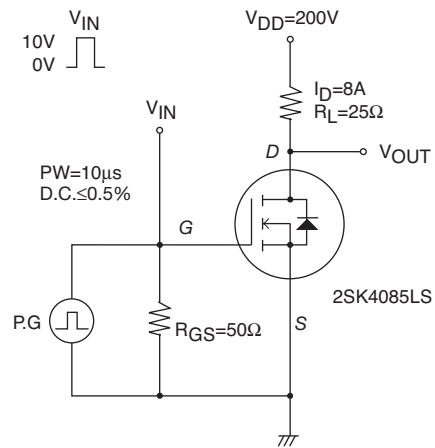


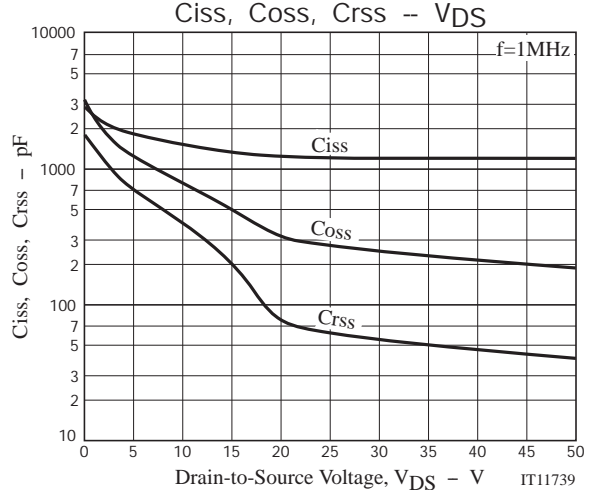
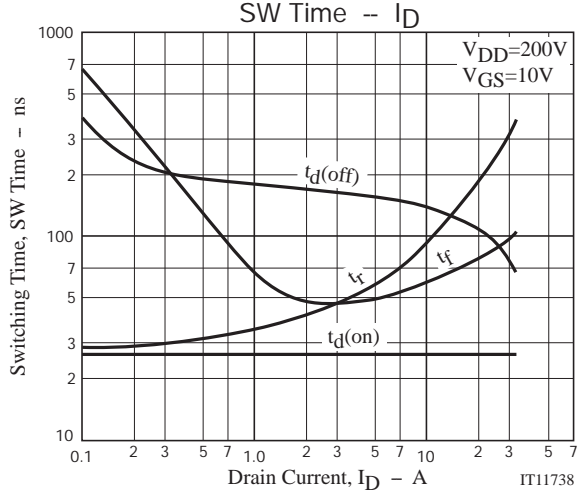
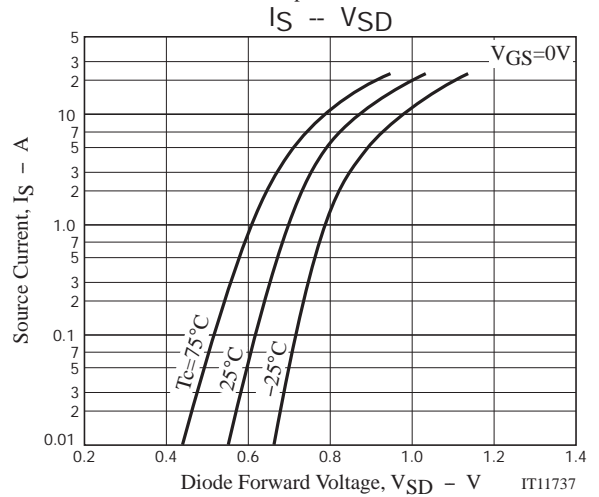
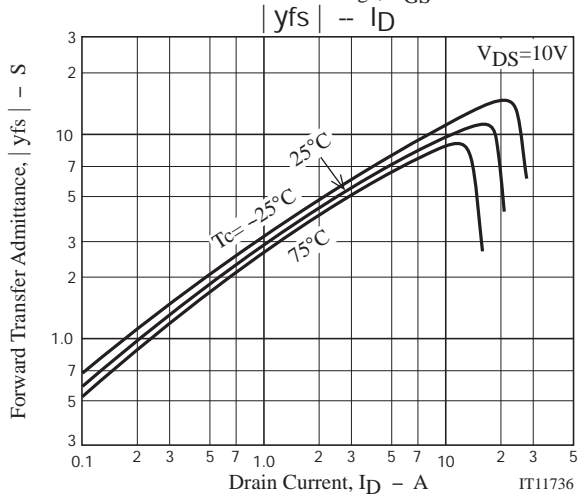
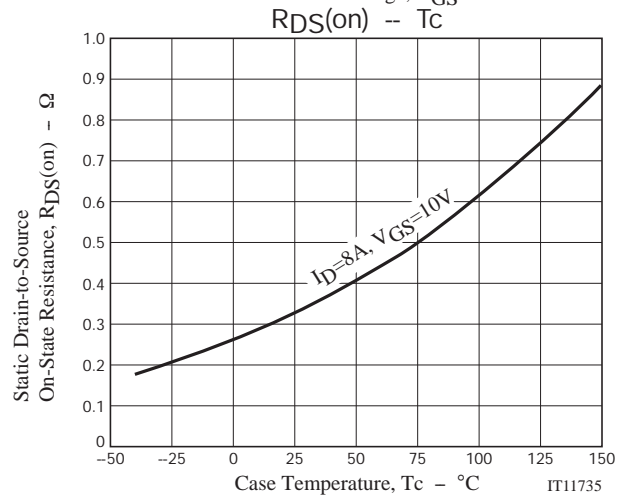
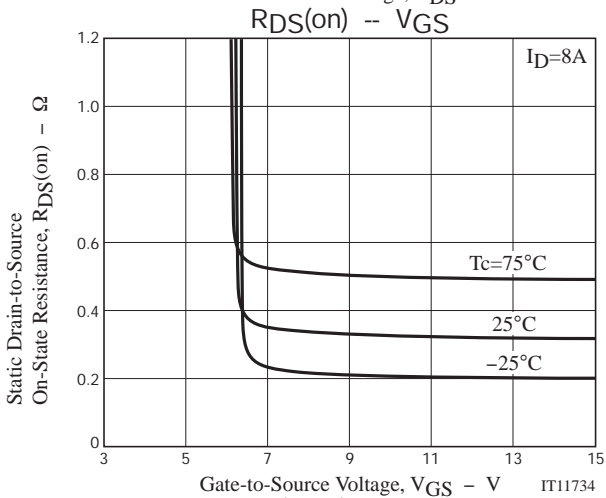
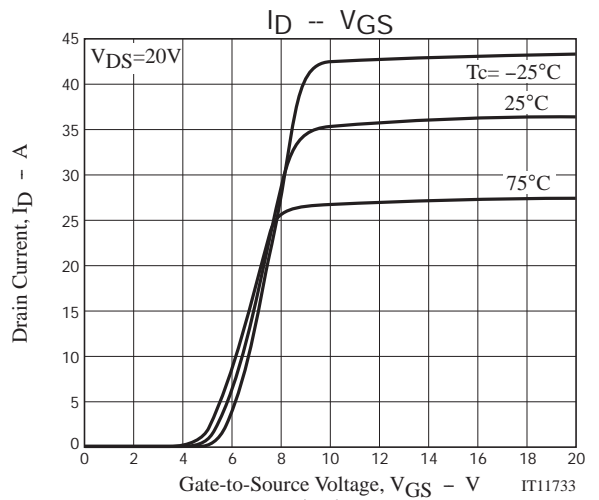
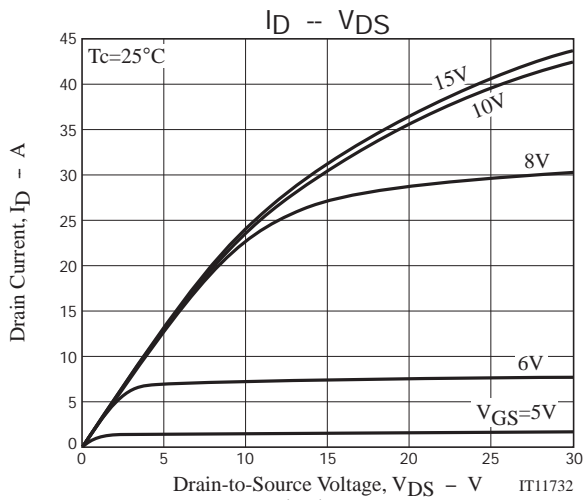
Fig.2 Switching Time Test Circuit



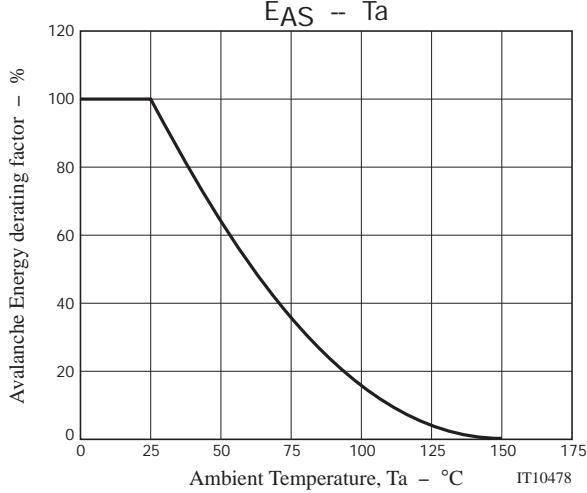
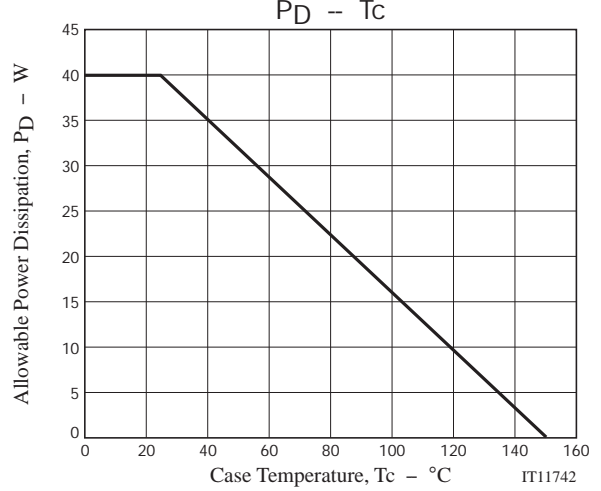
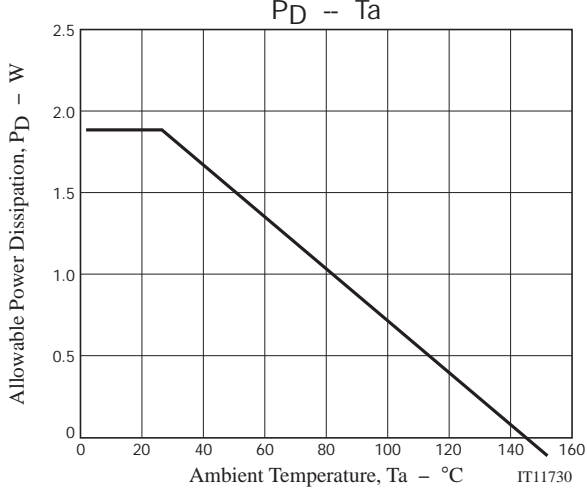
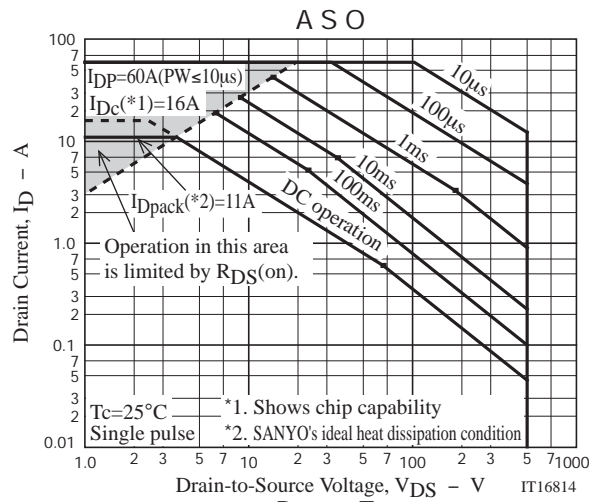
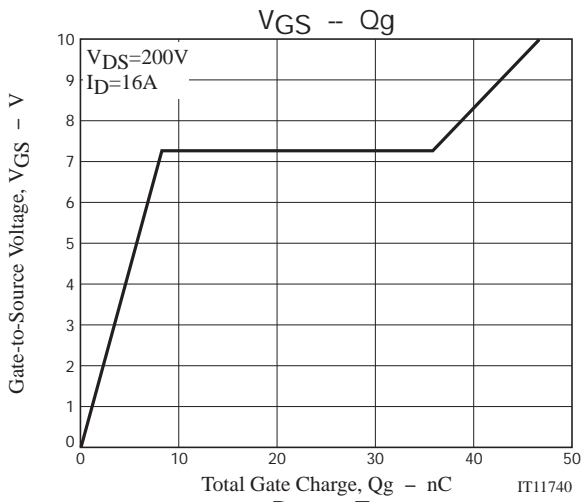
## Ordering Information

Device	Package	Shipping	memo
2SK4085LS-1E	TO-220F-3FS	50pcs./magazine	Pb Free

# 2SK4085LS



# 2SK4085LS



# 2SK4085LS

## Magazine Specification

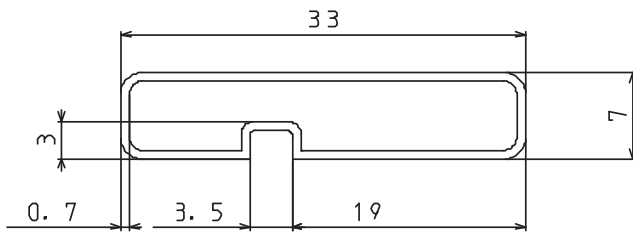
2SK4085LS-1E

### 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

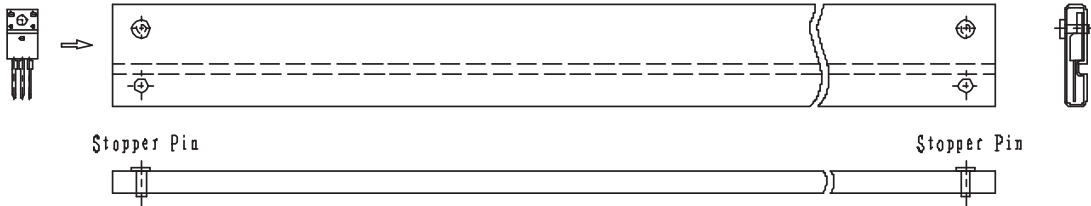
### 2. Magazine dimensions

(unit:mm)

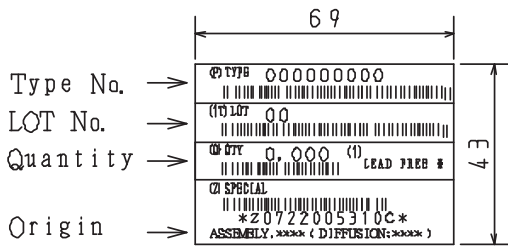


Tolerance=±0.3mm  
 Thickness=0.7±0.2mm  
 Length =532.5±2mm  
 Material =PVC (Antistatic treatment)

### 3. Storage method to magazine

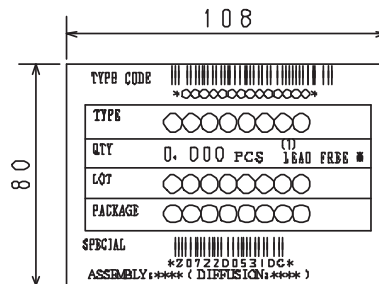


### 4. Inner box label (unit:mm)



### 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.



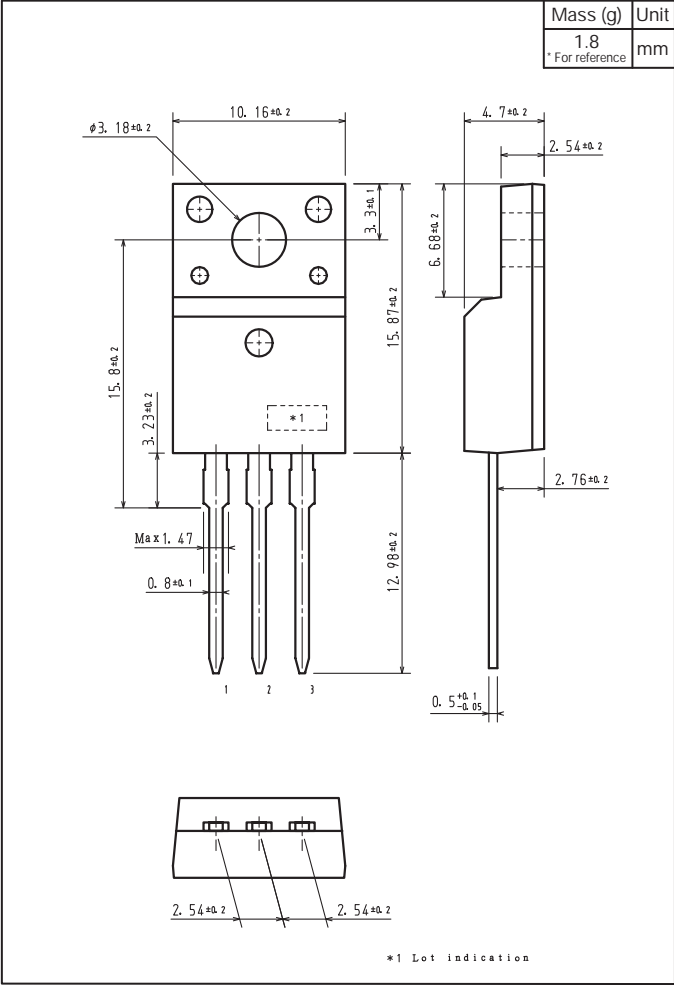
**NOTE (1)**

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

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2SK4085LS

Outline Drawing  
2SK4085LS-1E



Note on usage : Since the 2SK4085LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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