



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}		± 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.

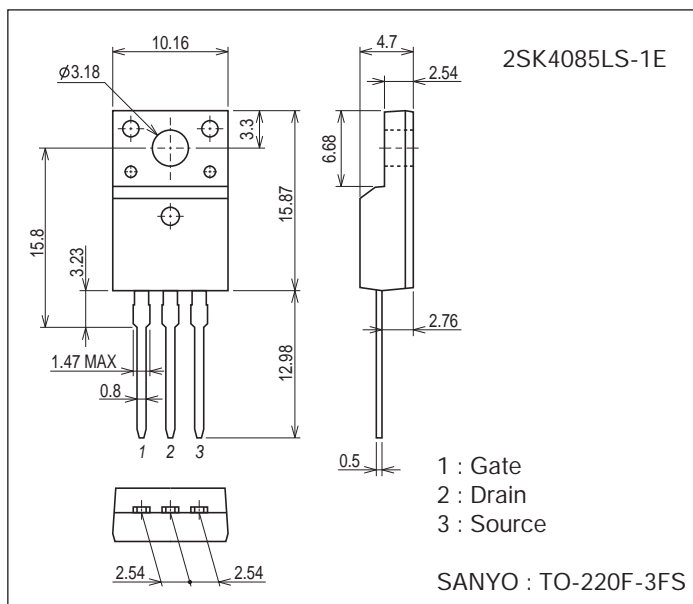
*4 $V_{DD}=50V$, $L=1mH$, $I_{AV}=16A$ (Fig.1)

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

Package Dimensions

unit : mm (typ)

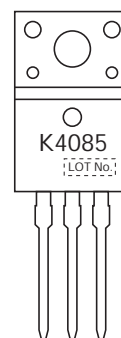
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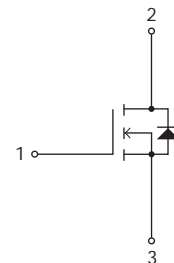
Product & Package Information

- 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

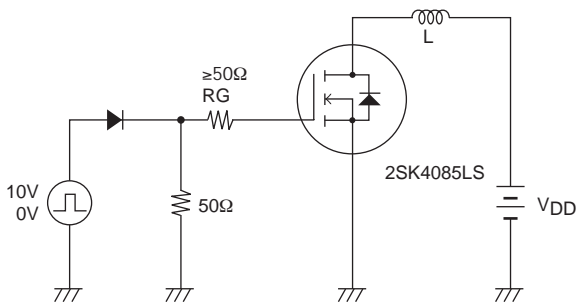
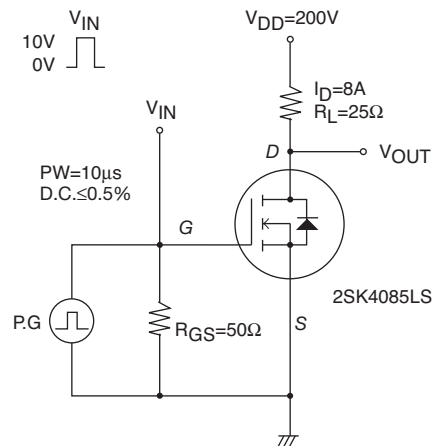


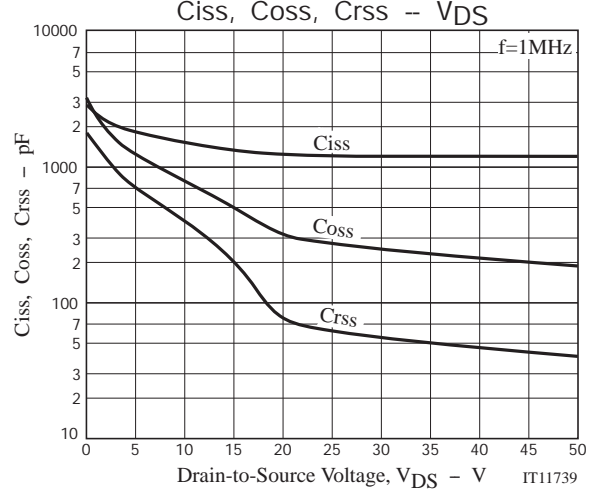
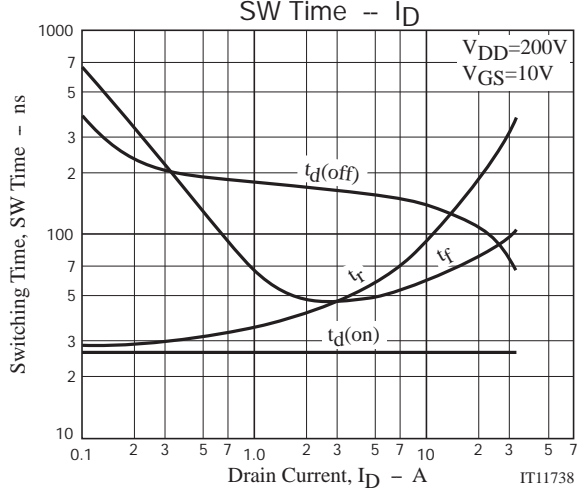
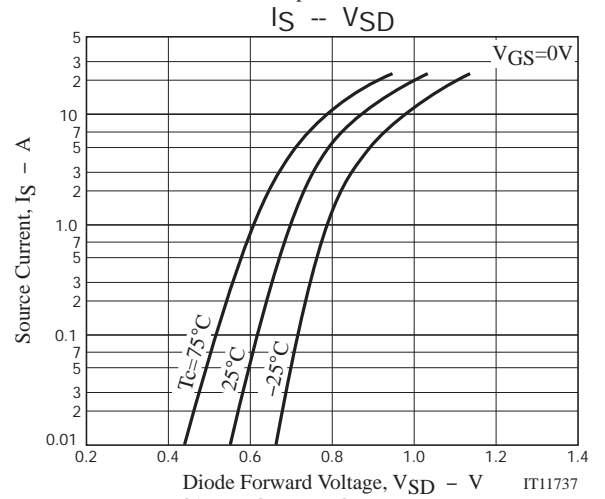
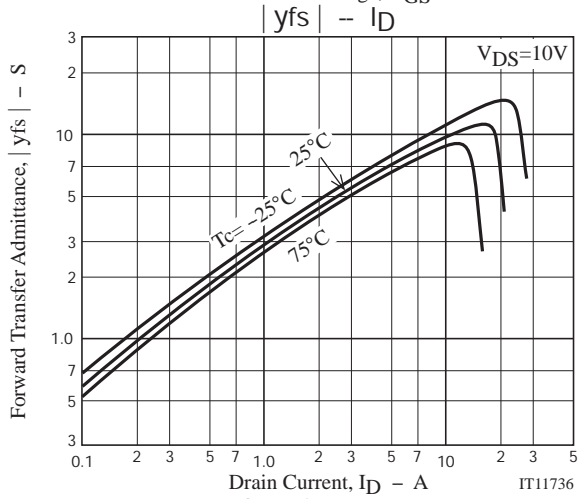
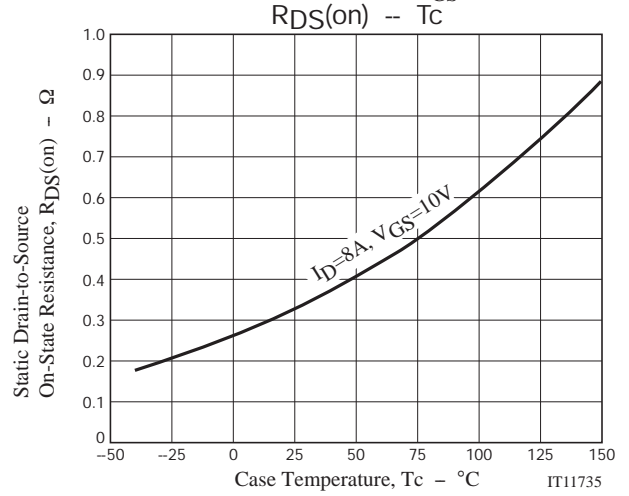
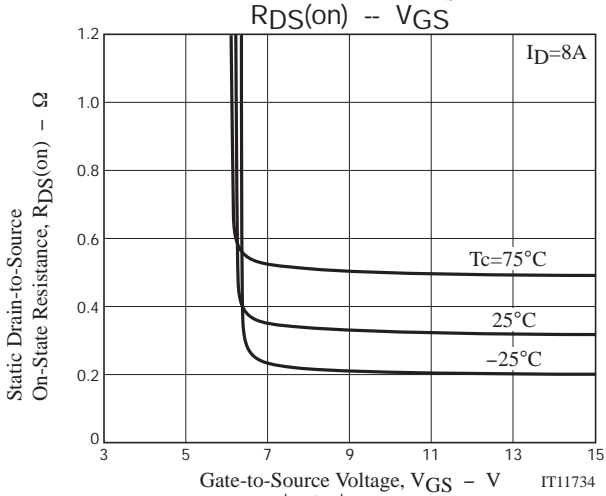
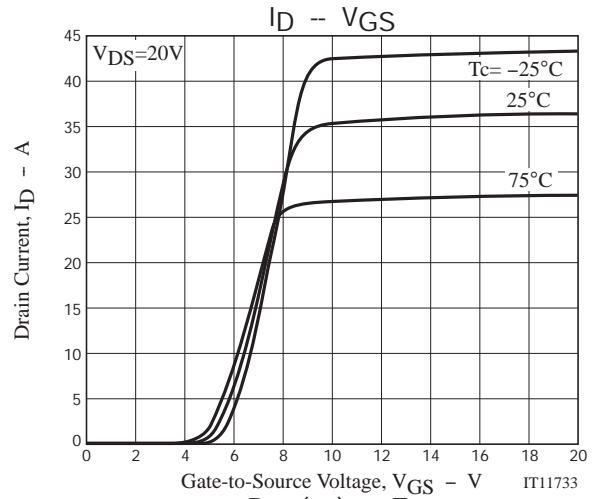
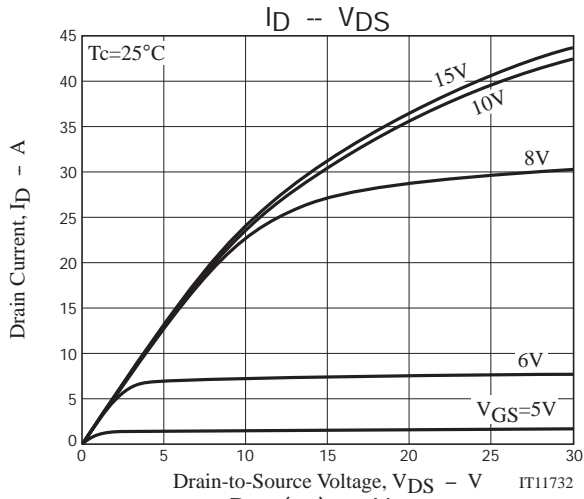
Fig.2 Switching Time Test Circuit



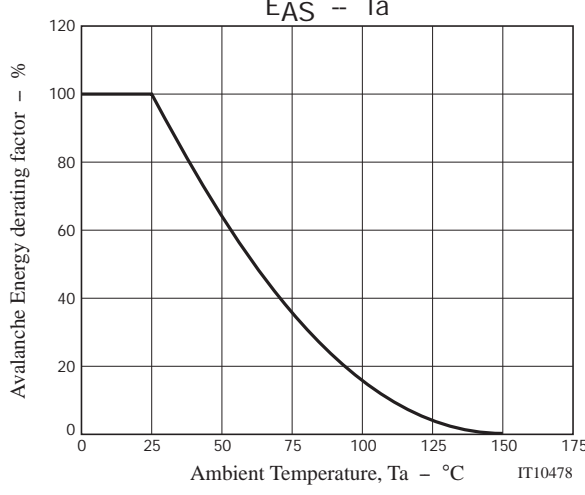
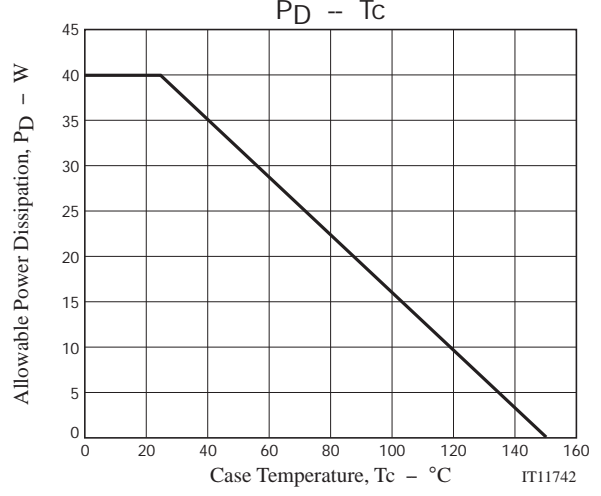
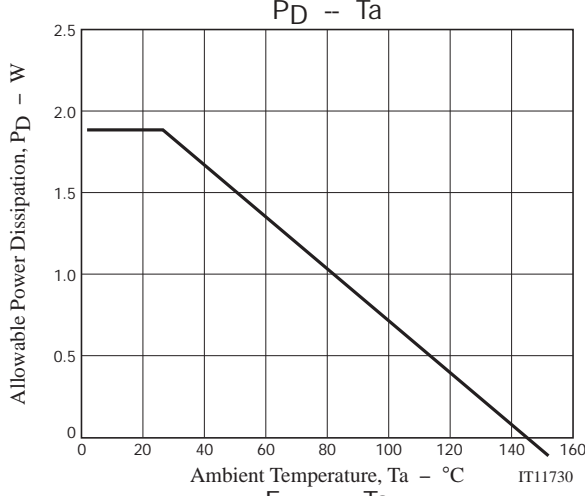
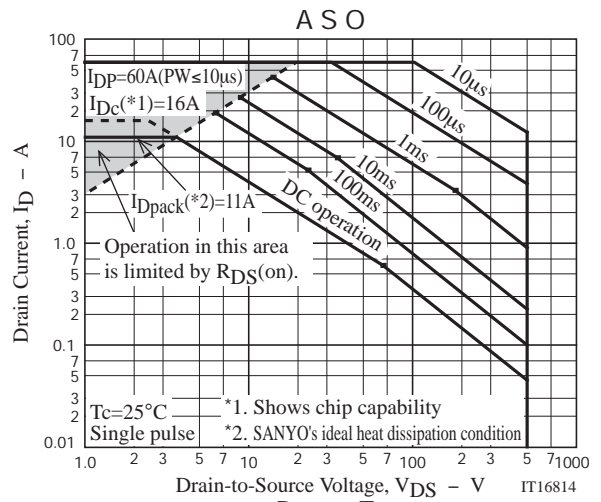
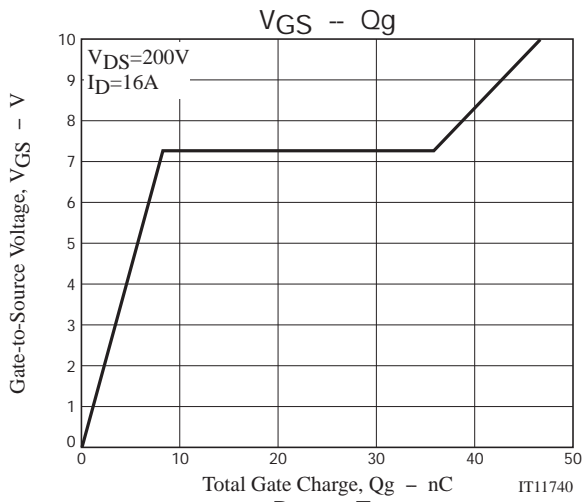
Ordering Information

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

2SK4085LS

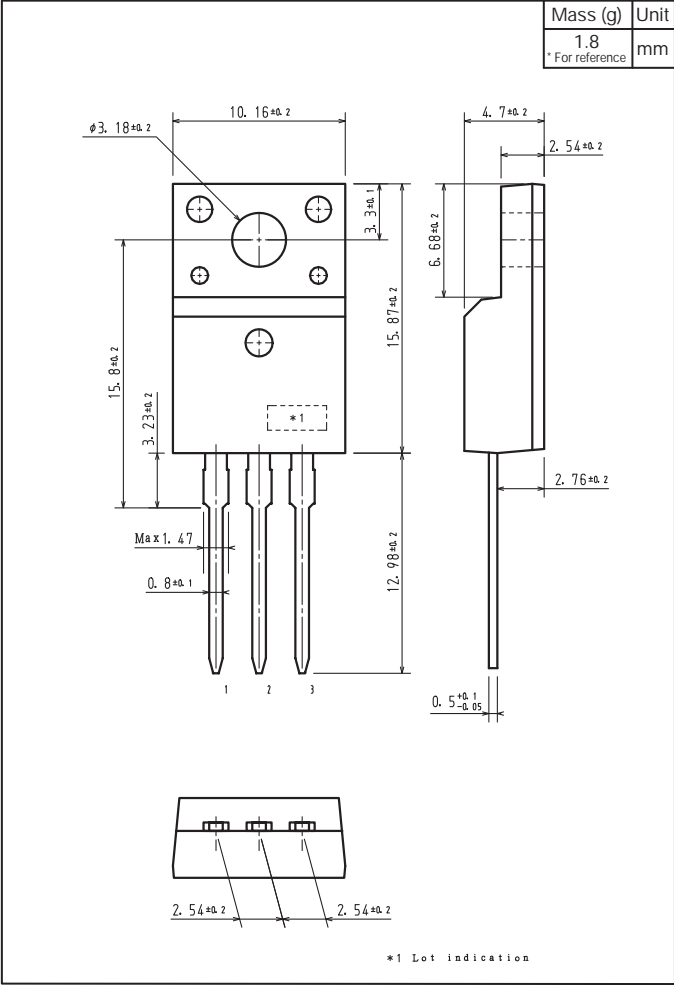


2SK4085LS



2SK4085LS

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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