Ordering number : ENA0312A

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK4064LS — General-Purpose Switching Device Applications

Features

- Low ON-resistance, low input capacitance, ultrahigh-speed switching.
- High reliability (Adoption of HVP process).
- Attachment workability is good by Mica-less package.
- Avalanche resistance guarantee.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_{Dc}*1	Limited only by maximum temperature	14	A
	I_{Dpack}*2	SANYO's ideal heat dissipation condition	10	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	56	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C (SANYO's ideal heat dissipation condition)	45	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Energy (Single Pulse) *3	E_{AS}		586	mJ
Avalanche Current *4	I_{AV}		14	A

*1 Shows chip capability

*2 Package limited

*3 V_{DD}=99V, L=5mH, I_{AV}=14A

*4 L≤5mH, single pulse

Marking : K4064

SANYO Semiconductor Co., Ltd.

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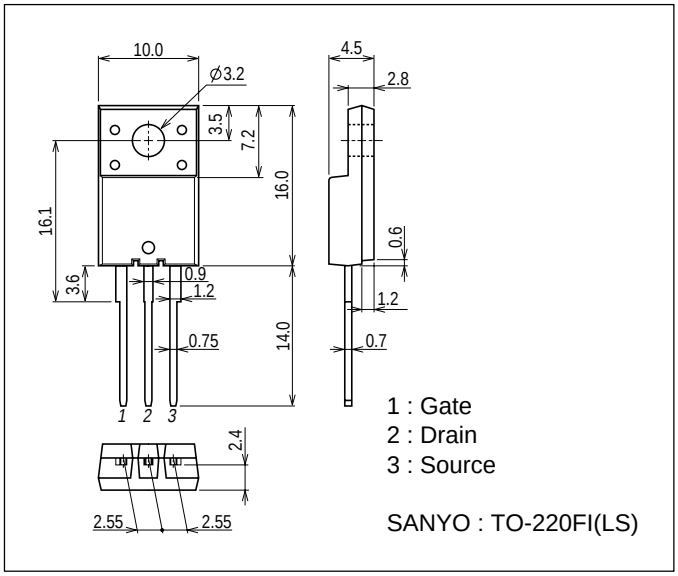
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	600			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=600V, V_{GS}=0V			100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	3		5	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=6A	5	10		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)	I_D=6A, V_{GS}=15V		0.45	0.58	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		2000		pF
Output Capacitance	Coss	V_{DS}=30V, f=1MHz		210		pF
Reverse Transfer Capacitance	Crss	V_{DS}=30V, f=1MHz		12		pF
		V_{DS}=5V, f=1MHz		25		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		52		ns
Rise Time	t_r	See specified Test Circuit.		84		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		78		ns
Fall Time	t_f	See specified Test Circuit.		58		ns
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=12A		37		nC
Gate-to-Source Charge	Qgs	V_{DS}=200V, V_{GS}=10V, I_D=12A		14		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=200V, V_{GS}=10V, I_D=12A		12.5		nC
Diode Forward Voltage	V_{SD}	I_S=12A, V_{GS}=0V		0.9	1.2	V

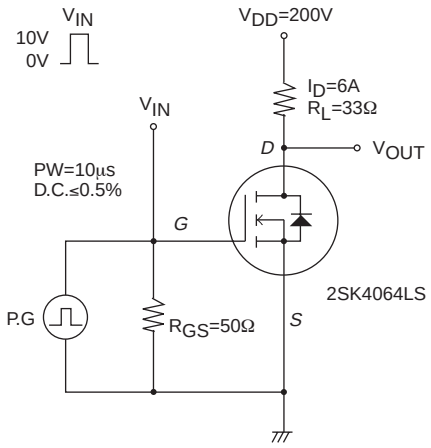
Package Dimensions

unit : mm (typ)

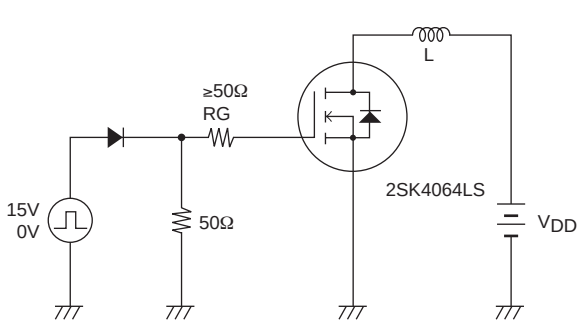
7509-002

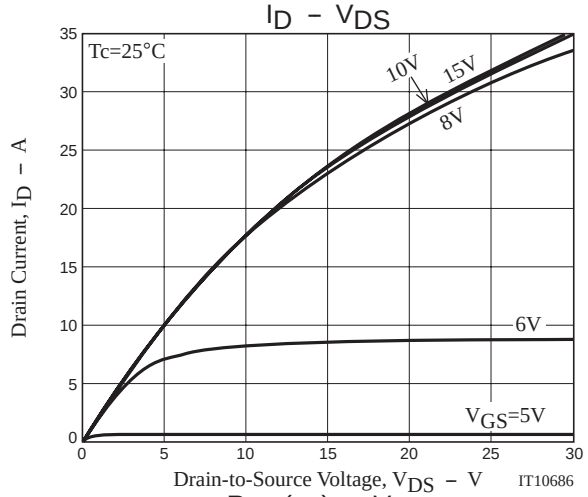


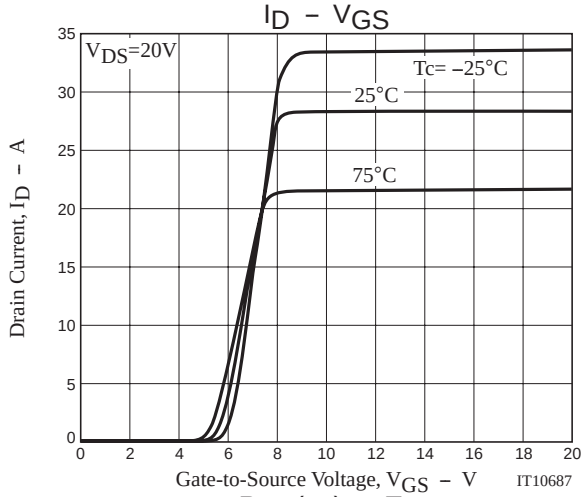
Switching Time Test Circuit

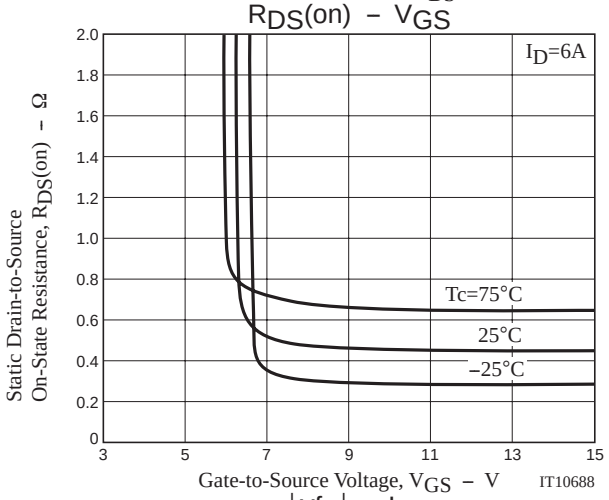


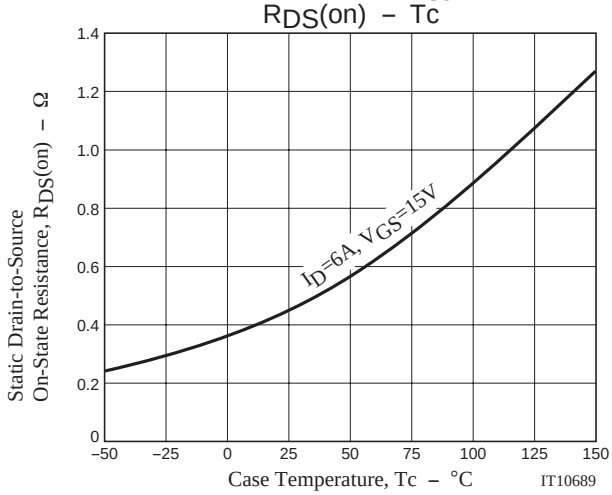
Avalanche Resistance Test Circuit

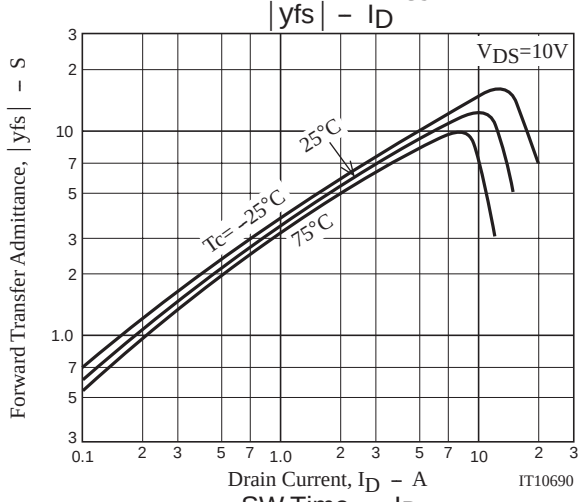


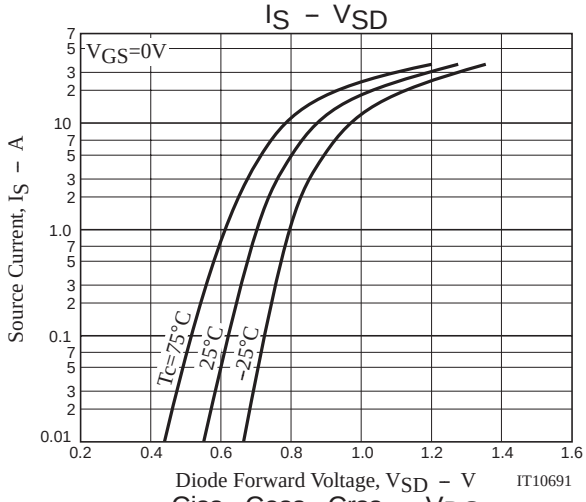

ID – VDS
Tc=25°C
10V
15V
8V
6V
VGS=5V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT10686

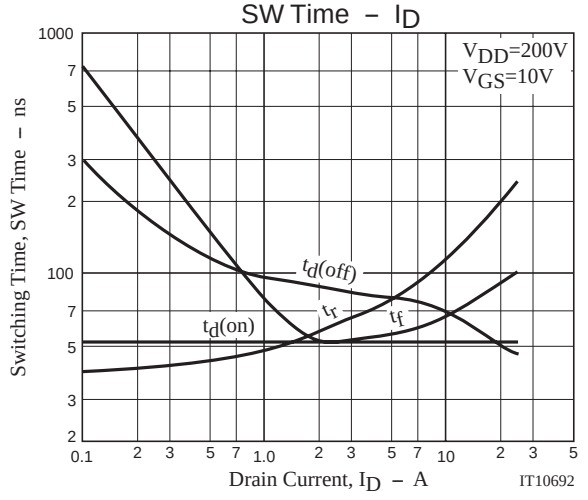

ID – VGS
VDS=20V
Tc= –25°C
25°C
75°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT10687

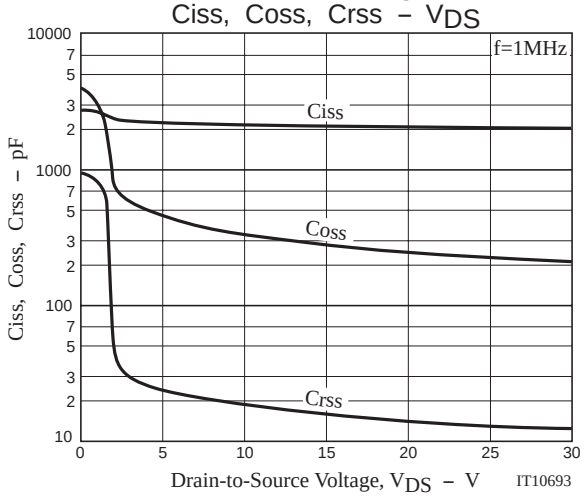

RDS(on) – VGS
ID=6A
Tc=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT10688

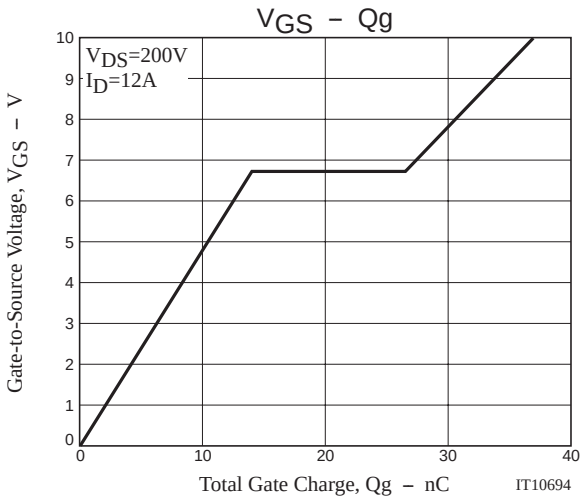

RDS(on) – Tc
ID=6A, VGS=15V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
IT10689

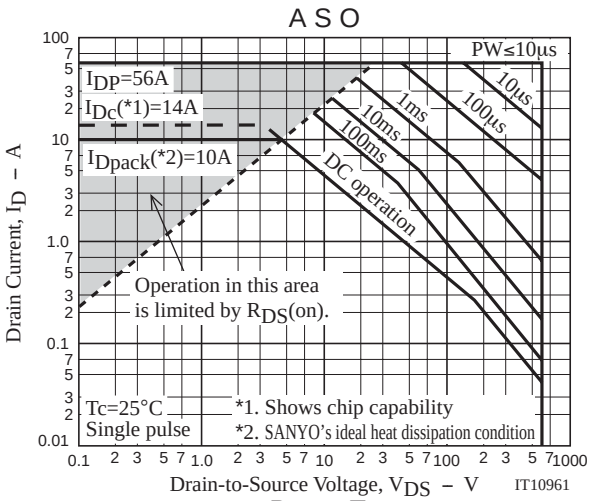

|yfs| – ID
VDS=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT10690

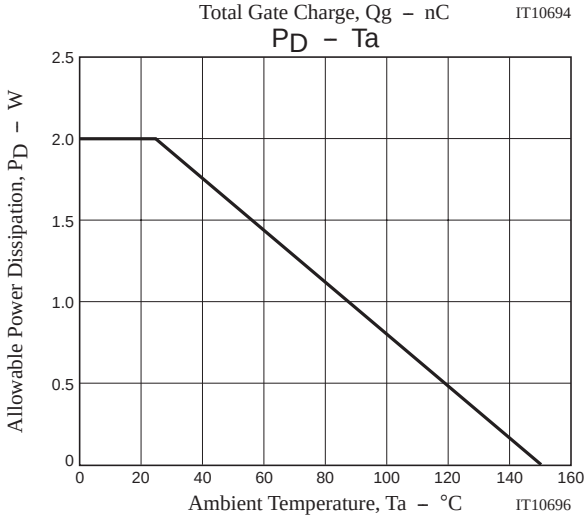

IS – VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT10691

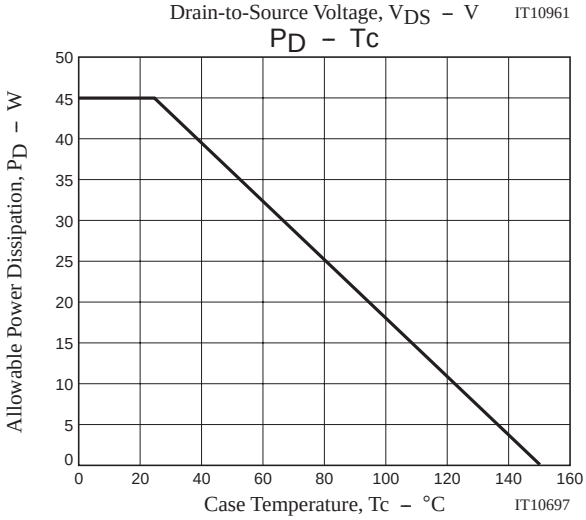

SW Time – ID
VDD=200V
VGS=10V
td(off)
tr
tf
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT10692

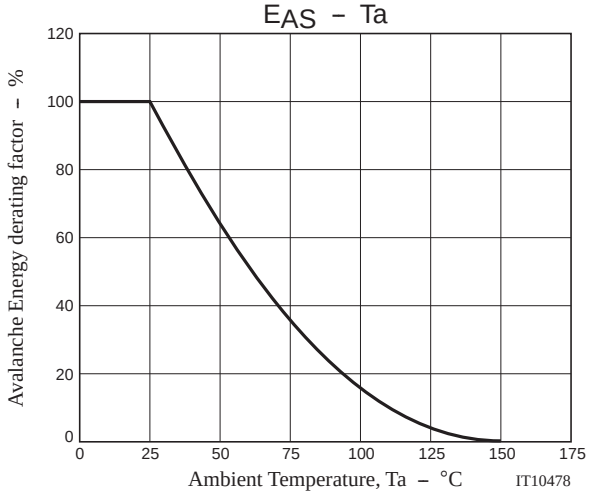

Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT10693


VGS – Qg
VDS=200V
ID=12A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT10694


A S O
PW≤10μs
IDP=56A
IDC(*1)=14A
IDpack(*2)=10A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area
is limited by RDS(on).
Tc=25°C
Single pulse
*1. Shows chip capability
*2. SANYO's ideal heat dissipation condition
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT10961


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT10696


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT10697


EAS – Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT10478

Note on usage : Since the 2SK4064LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of March, 2007. Specifications and information herein are subject to change without notice.