

**SANYO Semiconductors****DATA SHEET**

# 2SK4097LS — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

**Features**

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

**Specifications****Absolute Maximum Ratings** at  $T_a=25^\circ\text{C}$ 

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	9.5	A
	$I_{Dpack}^{*2}$	$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	8.3	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	38	A
Allowable Power Dissipation	$P_D$		2.0	W
		$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	35	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *4	$E_{AS}$		280	mJ
Avalanche Current *5	$I_{AV}$		9.5	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  $V_{DD}=99\text{V}$ ,  $L=5\text{mH}$ ,  $I_{AV}=9.5\text{A}$ \*5  $L \leq 5\text{mH}$ , single pulse

Marking : K4097

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**SANYO Semiconductor Co., Ltd.**

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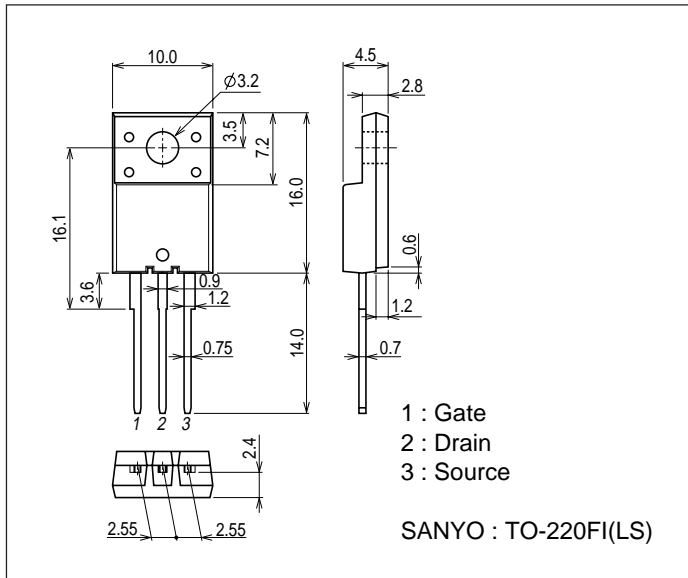
**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	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=5A	3	6		S
Static Drain-to-Source On-State Resistance	RDS(on)	ID=5A, VGS=10V		0.5	0.65	Ω
Input Capacitance	Ciss	VDS=30V, f=1MHz		750		pF
Output Capacitance	Coss	VDS=30V, f=1MHz		150		pF
Reverse Transfer Capacitance	Crss	VDS=30V, f=1MHz		35		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		16		ns
Rise Time	tr	See specified Test Circuit.		44		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		102		ns
Fall Time	tf	See specified Test Circuit.		47		ns
Total Gate Charge	Qg	VDS=200V, VGS=10V, ID=9.5A		30		nC
Gate-to-Source Charge	Qgs	VDS=200V, VGS=10V, ID=9.5A		5.2		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=200V, VGS=10V, ID=9.5A		17		nC
Diode Forward Voltage	VSD	IS=9.5A, VGS=0V		0.9	1.2	V

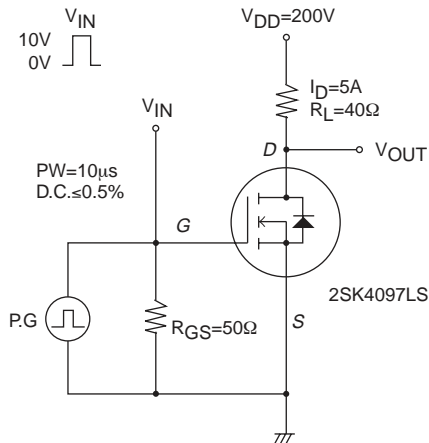
**Package Dimensions**

unit : mm (typ)

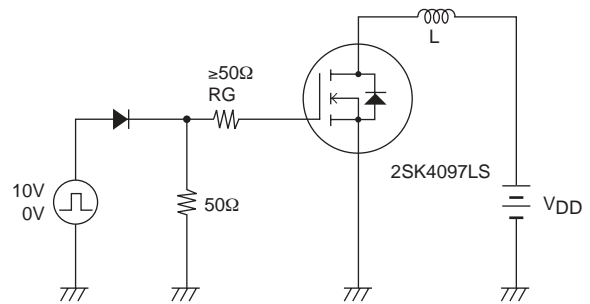
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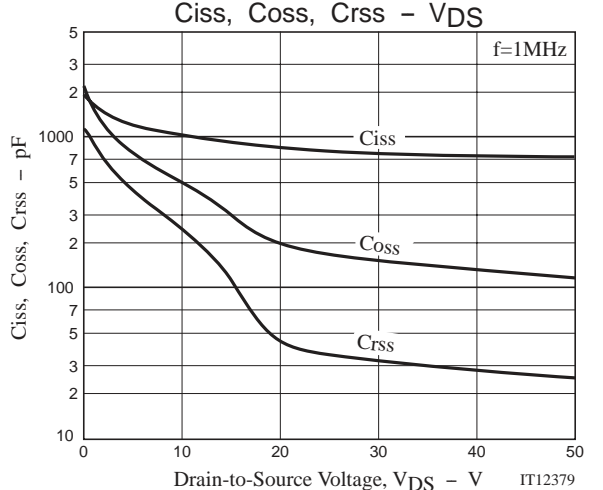
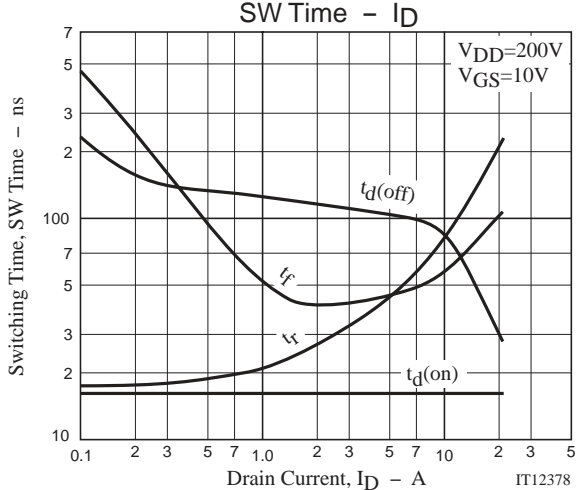
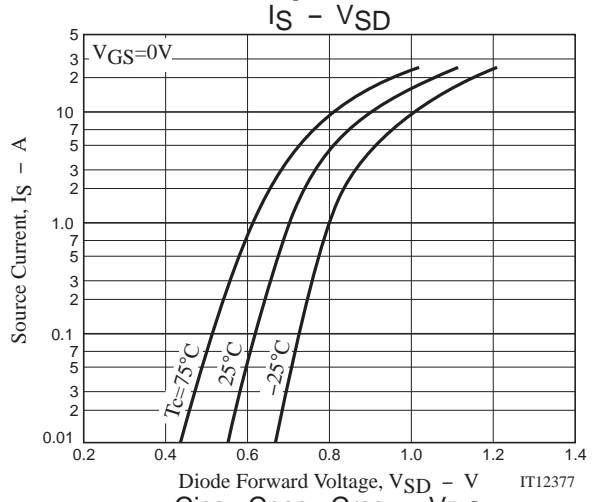
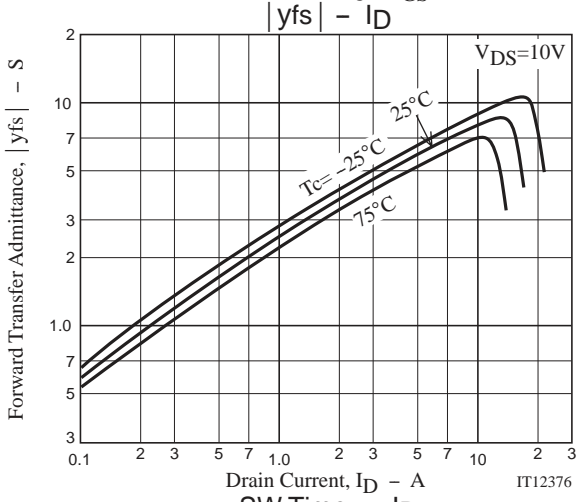
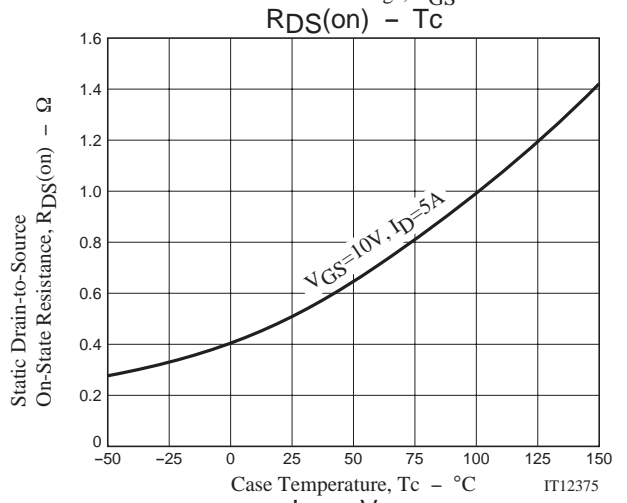
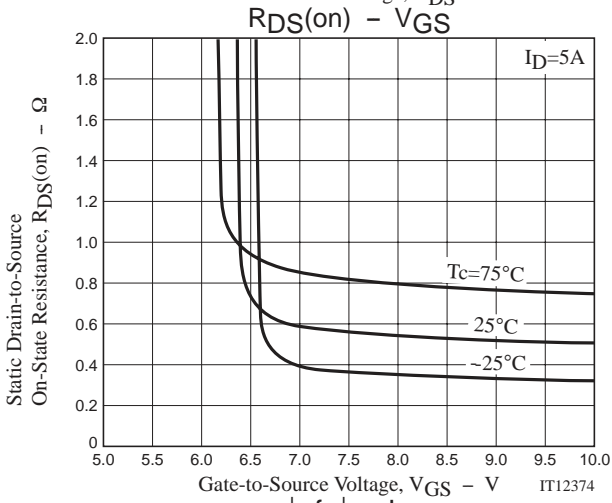
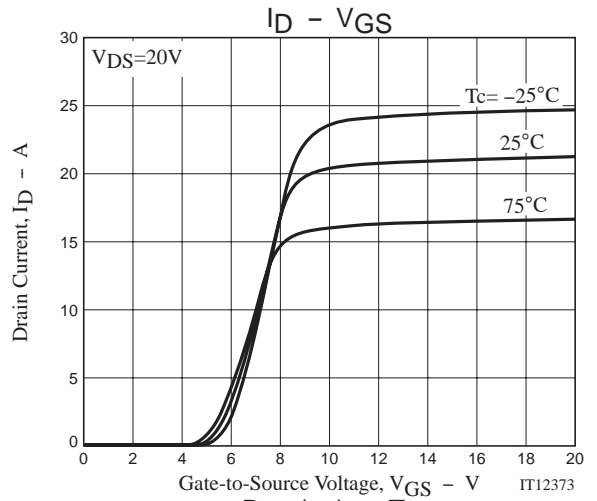
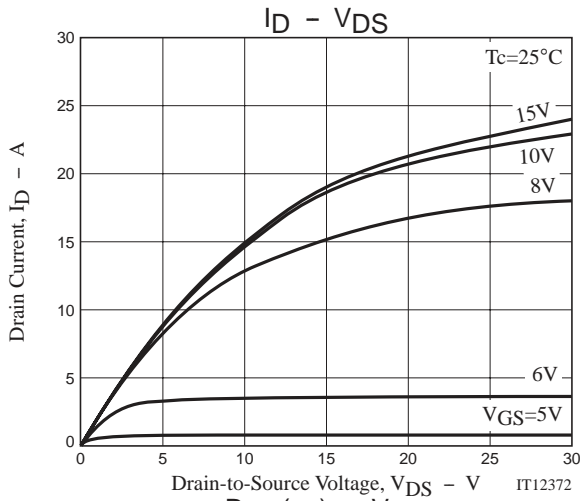


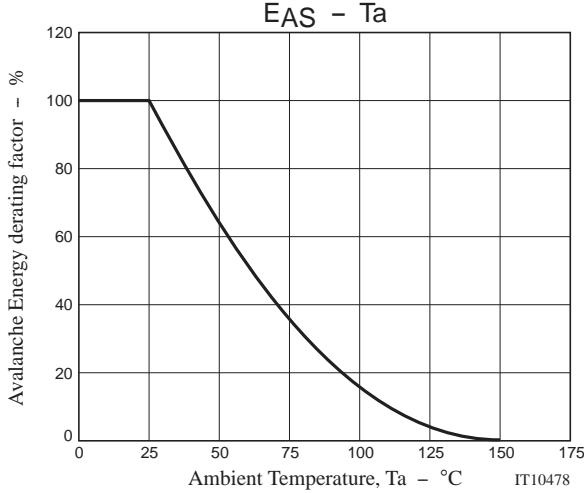
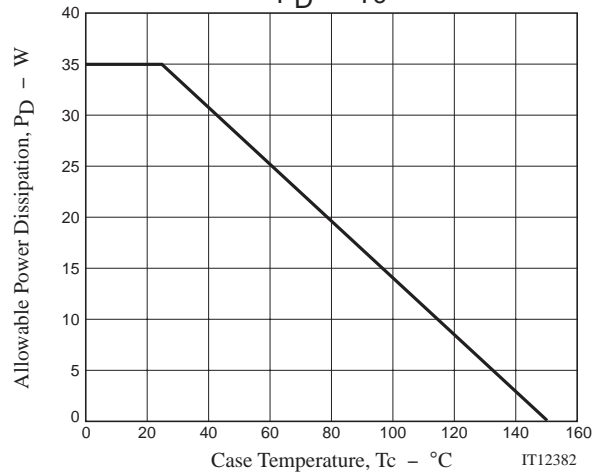
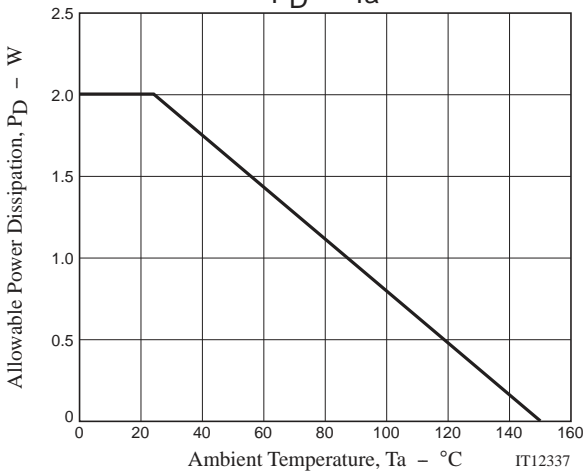
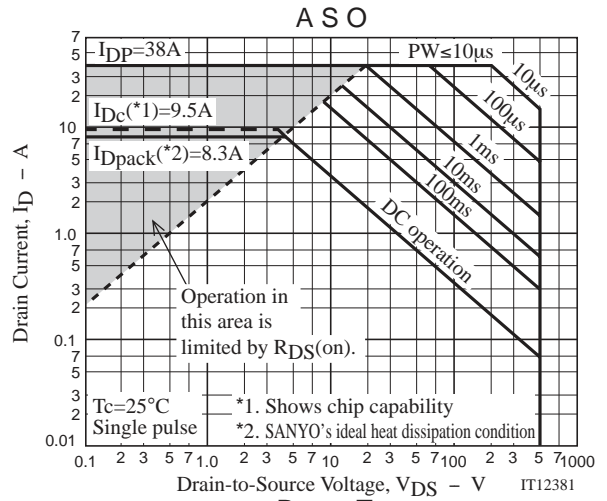
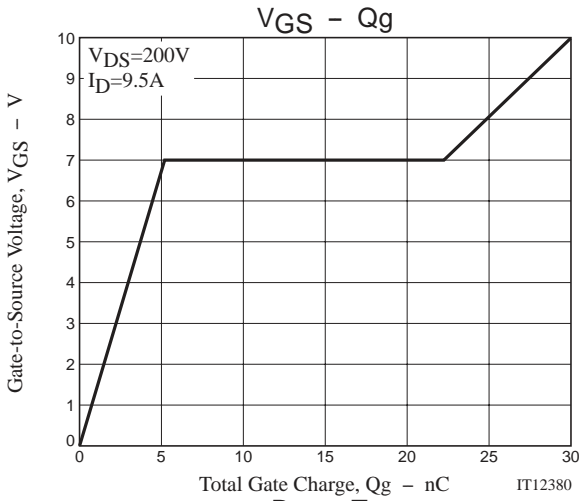
**Switching Time Test Circuit**



**Avalanche Resistance Test Circuit**







Note on usage : Since the 2SK4097LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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