



# SANYO Semiconductors

## DATA SHEET

N-Channel Silicon MOSFET

# 2SK4117LS — 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 Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		400	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±30	V
Drain Current (DC)	I <sub>Dc</sub> <sup>*1</sup>	Limited only by maximum temperature	15	A
	I <sub>Dpack</sub> <sup>*2</sup>	SANYO's ideal heat dissipation condition	10.4	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	47	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C (SANYO's ideal heat dissipation condition)	35	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single Pulse) *3	E <sub>AS</sub>		296	mJ
Avalanche Current *4	I <sub>AV</sub>		15	A

\*1 Shows chip capability

\*2 Package limited

\*3 V<sub>DD</sub>=99V, L=2mH, I<sub>AV</sub>=15A

\*4 L≤2mH, single pulse

Marking : K4117

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**SANYO Semiconductor Co., Ltd.**

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# 2SK4117LS

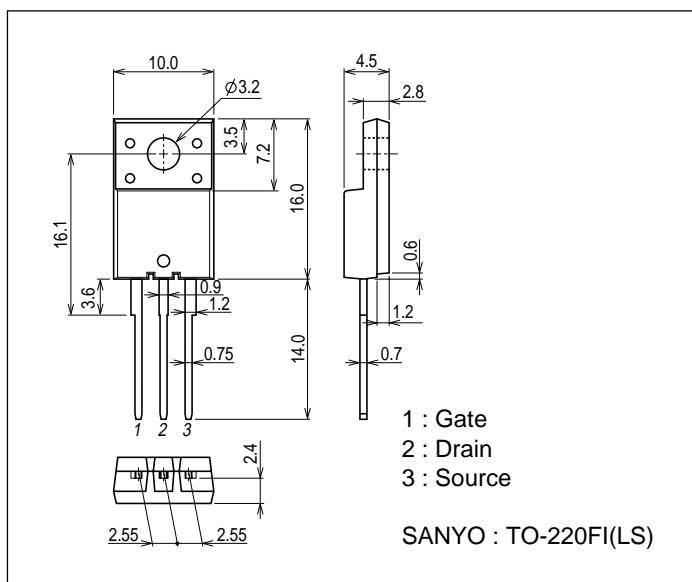
## Electrical Characteristics at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V(BR)DSS$	$I_D=10\text{mA}, V_{GS}=0\text{V}$	400			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=320\text{V}, V_{GS}=0\text{V}$			100	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	3		5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=7.5\text{A}$	3.6	7.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})}$	$I_D=7.5\text{A}, V_{GS}=10\text{V}$		0.32	0.42	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=30\text{V}, f=1\text{MHz}$		755		pF
Output Capacitance	$C_{oss}$	$V_{DS}=30\text{V}, f=1\text{MHz}$		180		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=30\text{V}, f=1\text{MHz}$		42		pF
Turn-ON Delay Time	$t_{d(\text{on})}$	See specified Test Circuit.		16		ns
Rise Time	$t_r$	See specified Test Circuit.		62		ns
Turn-OFF Delay Time	$t_{d(\text{off})}$	See specified Test Circuit.		101		ns
Fall Time	$t_f$	See specified Test Circuit.		56		ns
Total Gate Charge	$Q_g$	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		30.6		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		5.2		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		19.5		nC
Diode Forward Voltage	$V_{SD}$	$I_S=15\text{A}, V_{GS}=0\text{V}$		0.9	1.2	V

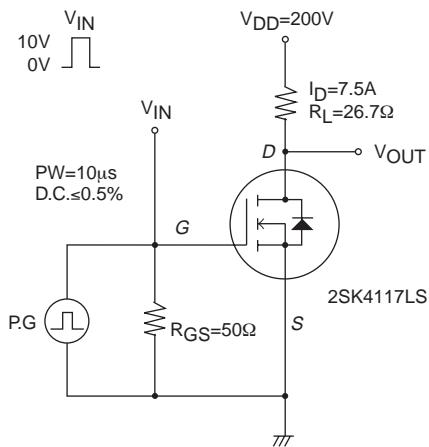
## Package Dimensions

unit : mm (typ)

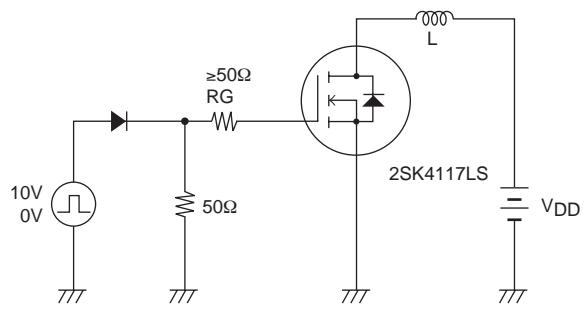
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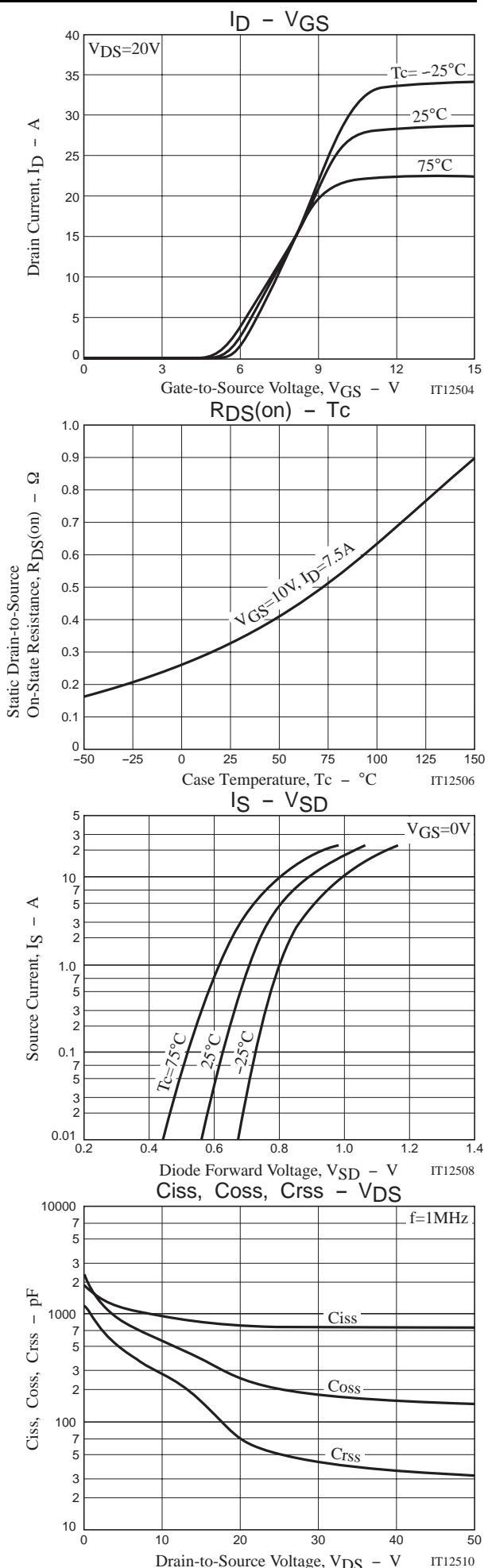
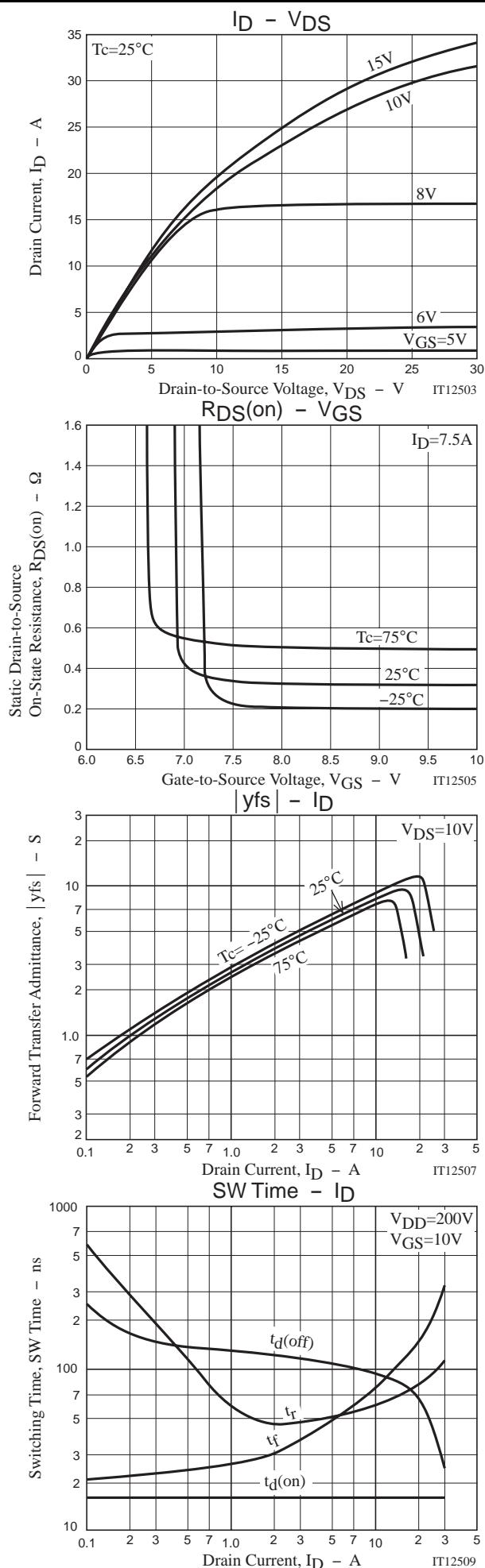
## Switching Time Test Circuit



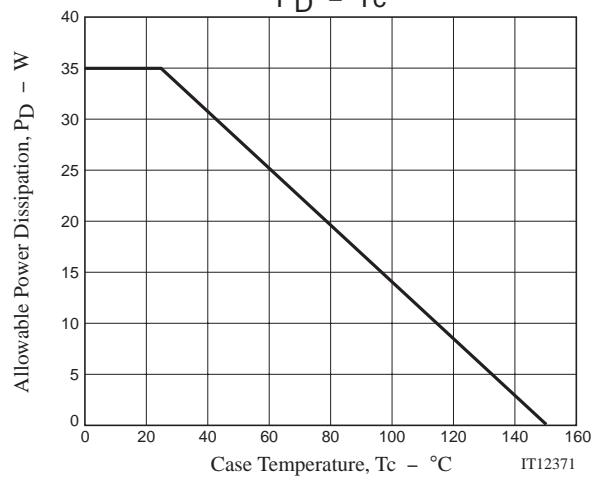
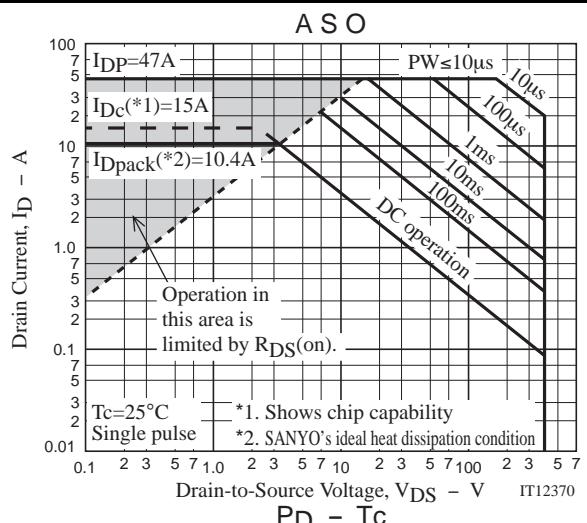
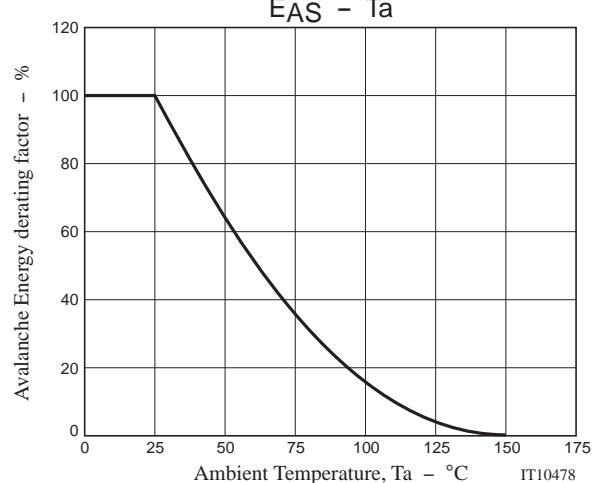
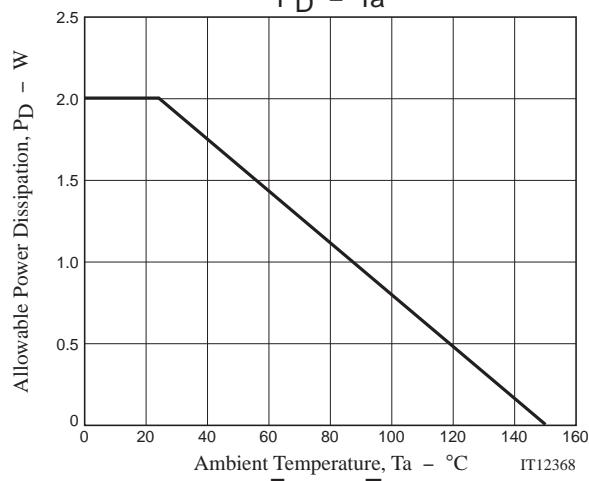
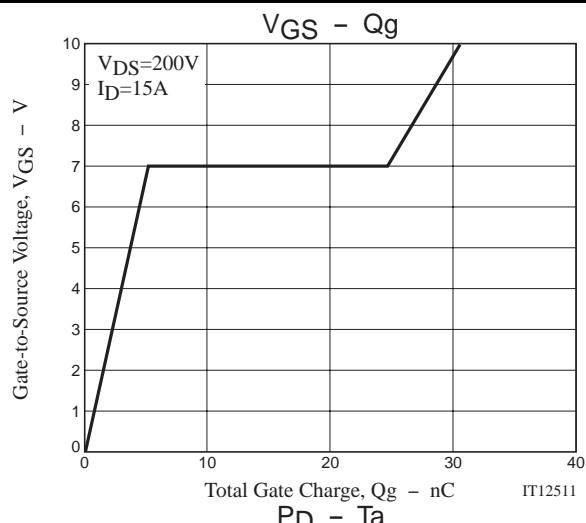
## Avalanche Resistance Test Circuit



# 2SK4117LS



# 2SK4117LS



Note on usage : Since the 2SK4117LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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