



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET
**2SK4089LS — 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}		650	V
Gate-to-Source Voltage	V _{GSS}		±30	V
Drain Current (DC)	I _{Dc} ^{*1}	Limited only by maximum temperature	12	A
	I _{Dpack} ^{*2}	SANYO's ideal heat dissipation condition	8.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	48	A
Allowable Power Dissipation	P _D		2.0	W
		T _c =25°C (SANYO's ideal heat dissipation condition)	40	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) ^{*3}	E _{AS}		84	mJ
Avalanche Current ^{*4}	I _{AV}		12	A

^{*1} Shows chip capability

^{*2} Package limited

^{*3} V_{DD}=99V, L=1mH, I_{AV}=12A

^{*4} L≤1mH, single pulse

Marking : K4089

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2SK4089LS

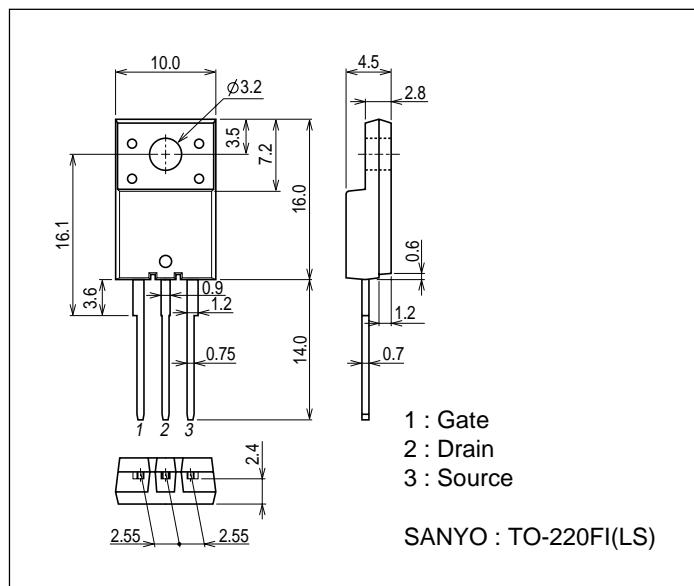
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	Id=10mA, VGS=0V	650			V
Zero-Gate Voltage Drain Current	IdSS	VDS=520V, 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=6A	3.8	7.5		S
Static Drain-to-Source On-State Resistance	RDS(on)	Id=6A, VGS=10V		0.55	0.72	Ω
Input Capacitance	Ciss	VDS=30V, f=1MHz		1200		pF
Output Capacitance	Coss	VDS=30V, f=1MHz		208		pF
Reverse Transfer Capacitance	Crss	VDS=30V, f=1MHz		44		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		27		ns
Rise Time	tr	See specified Test Circuit.		66		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		140		ns
Fall Time	tf	See specified Test Circuit.		45		ns
Total Gate Charge	Qg	VDS=200V, VGS=10V, Id=12A		45.4		nC
Gate-to-Source Charge	Qgs	VDS=200V, VGS=10V, Id=12A		7.7		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=200V, VGS=10V, Id=12A		26.1		nC
Diode Forward Voltage	VSD	Is=12A, VGS=0V		0.9	1.2	V

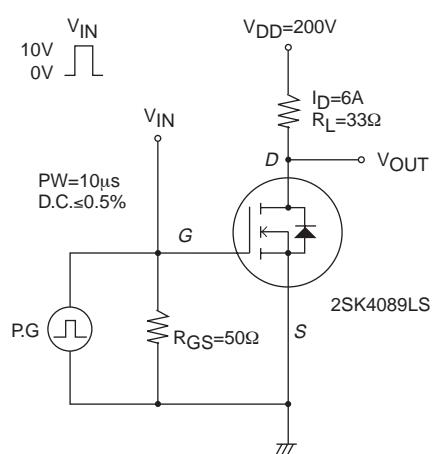
Package Dimensions

unit : mm (typ)

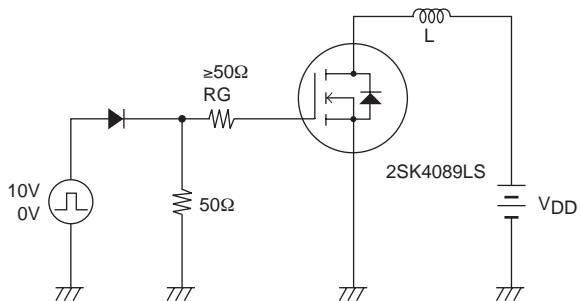
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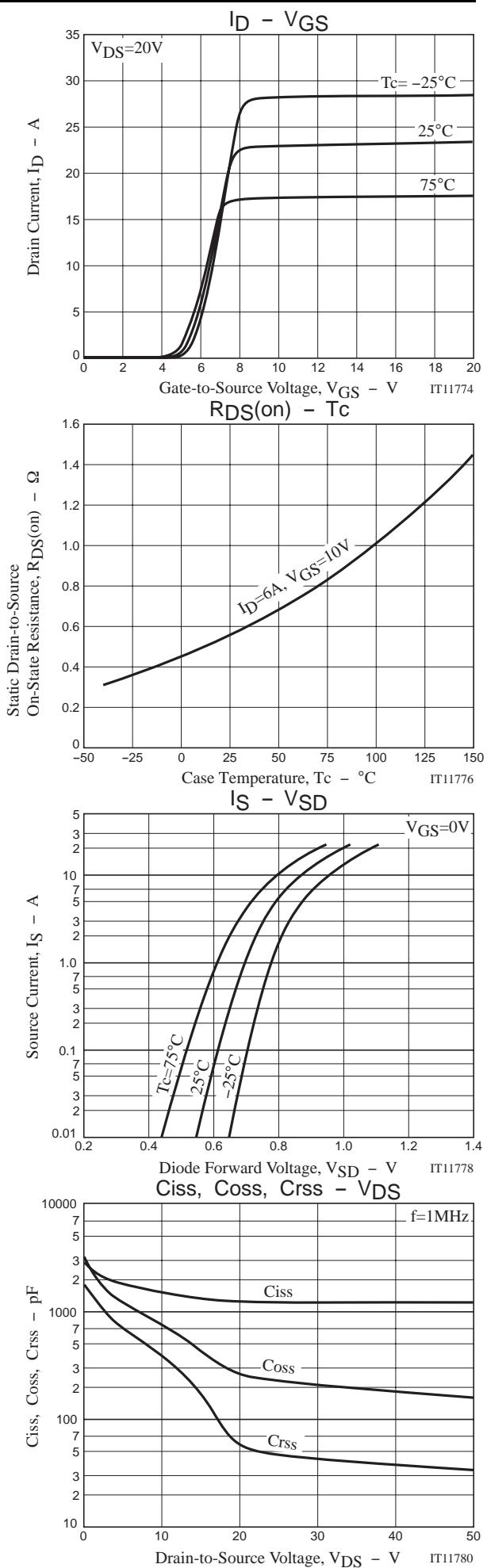
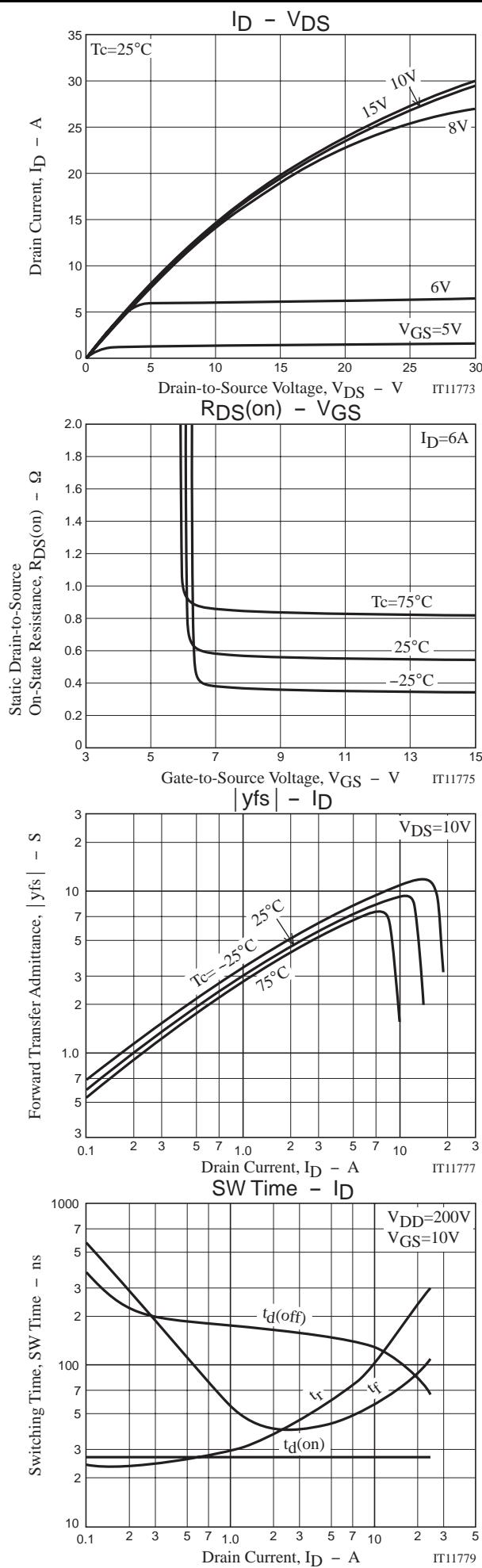
Switching Time Test Circuit



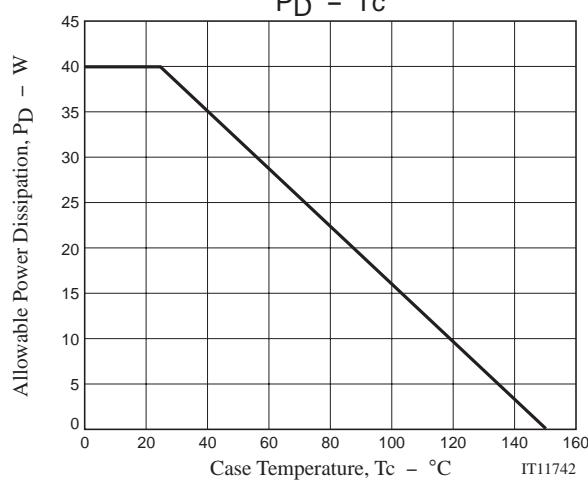
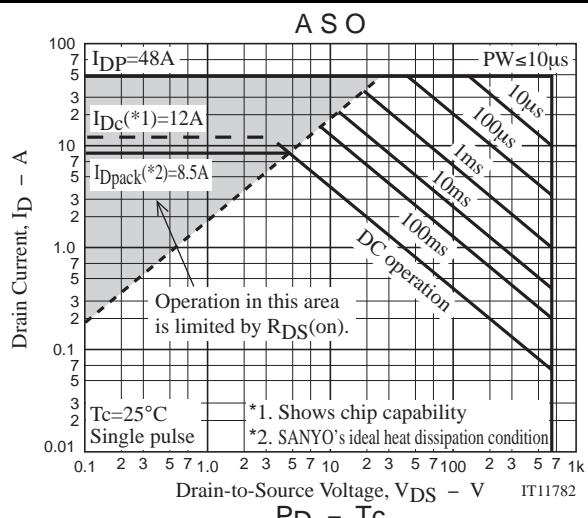
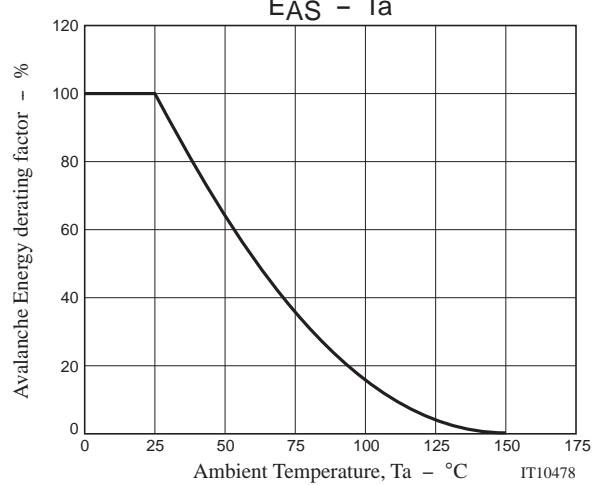
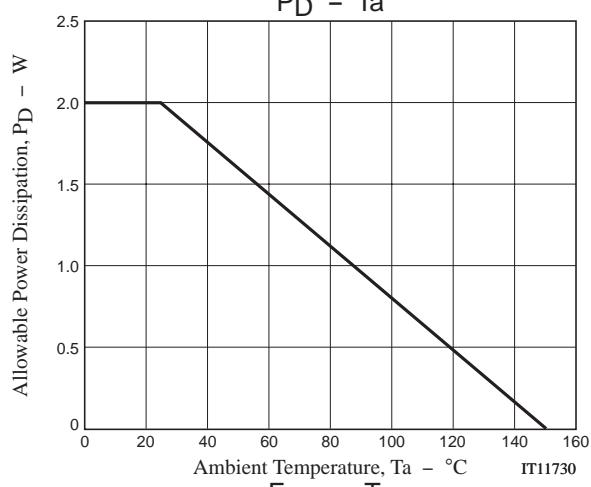
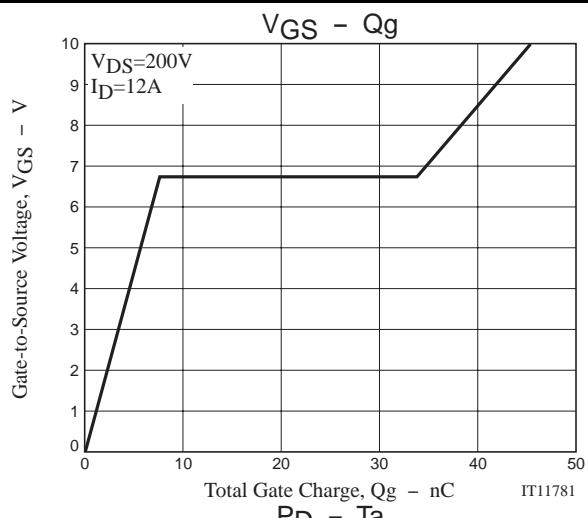
Avalanche Resistance Test Circuit



2SK4089LS



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Note on usage : Since the 2SK4089LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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