



SANYO Semiconductors

## DATA SHEET

# 2SK4204LS — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- 4V drive.
- Avalanche resistance guarantee.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		45	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		20	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	80	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		Tc=25°C	35	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E <sub>AS</sub>		57	mJ
Avalanche Current *2	I <sub>AV</sub>		20	A

Note : \*1 V<sub>DD</sub>=15V, L=200μH, I<sub>AV</sub>=20A

\*2 L≤200μH, Single pulse

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	45			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =45V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	V

Marking : K4204

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# 2SK4204LS

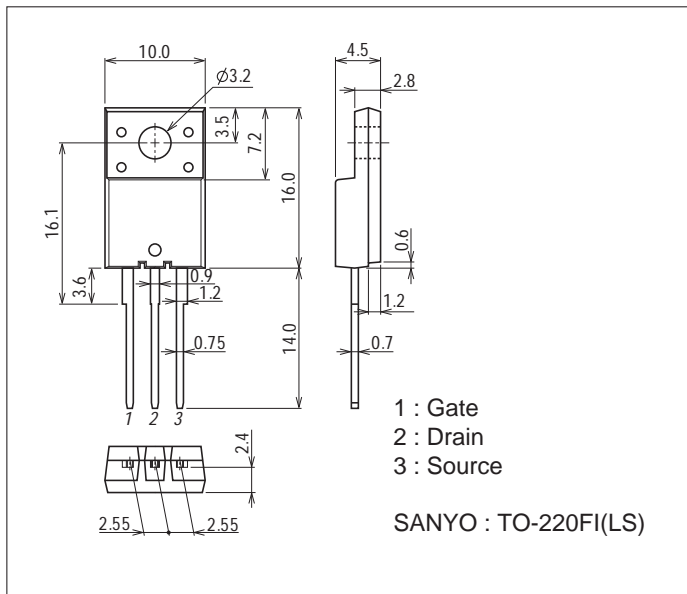
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=10A$	9	15		S
Static Drain-to-Source On-State Resistance	RDS(on)1	$I_D=10A, V_{GS}=10V$		17.5	23	mΩ
	RDS(on)2	$I_D=10A, V_{GS}=4V$		25.5	36	mΩ
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		2250		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		260		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		190		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		21		ns
Rise Time	$t_r$	See specified Test Circuit.		78		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		152		ns
Fall Time	$t_f$	See specified Test Circuit.		88		ns
Total Gate Charge	Qg	$V_{DS}=24V, V_{GS}=10V, I_D=20A$		41		nC
Gate-to-Source Charge	Qgs	$V_{DS}=24V, V_{GS}=10V, I_D=20A$		8		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=24V, V_{GS}=10V, I_D=20A$		8		nC
Diode Forward Voltage	VSD	$I_S=20A, V_{GS}=0V$		1.0	1.2	V

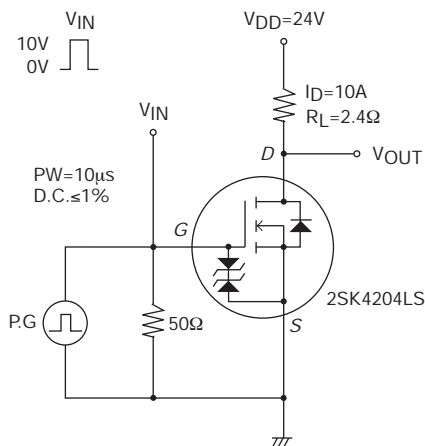
## Package Dimensions

unit : mm (typ)

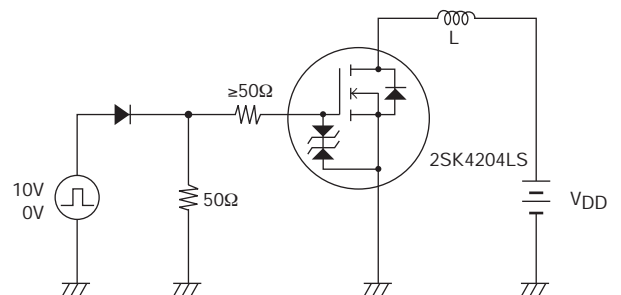
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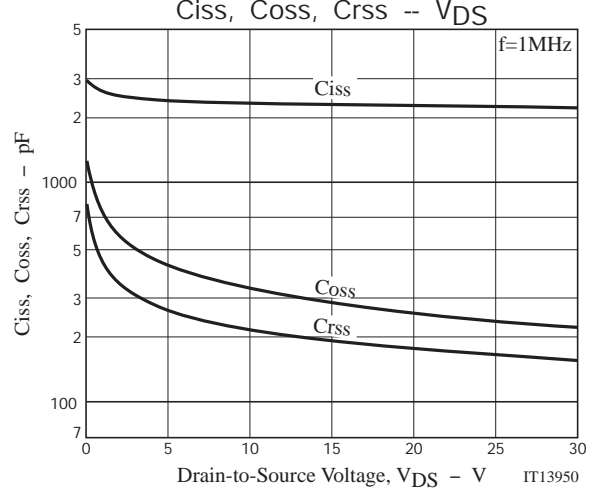
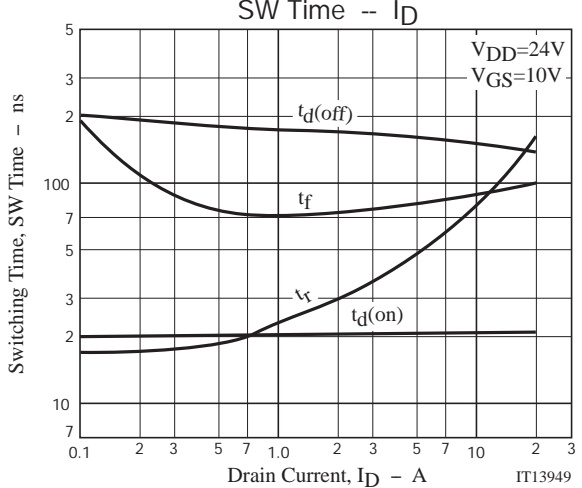
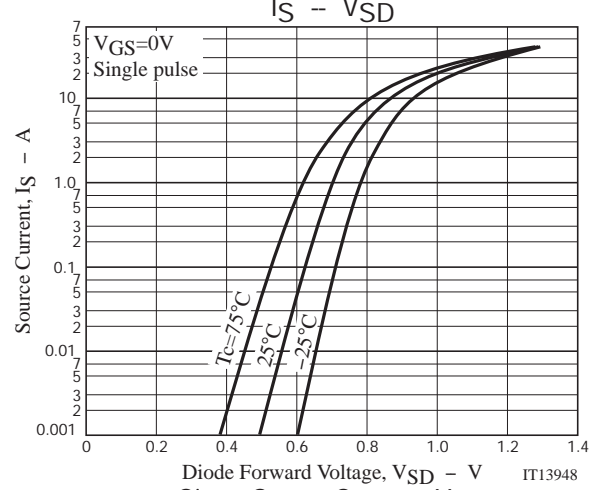
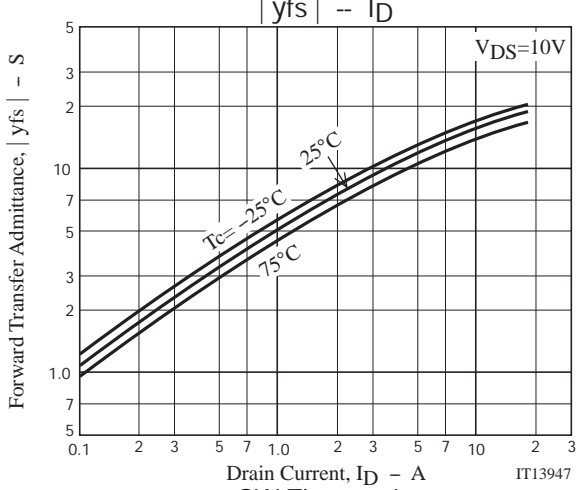
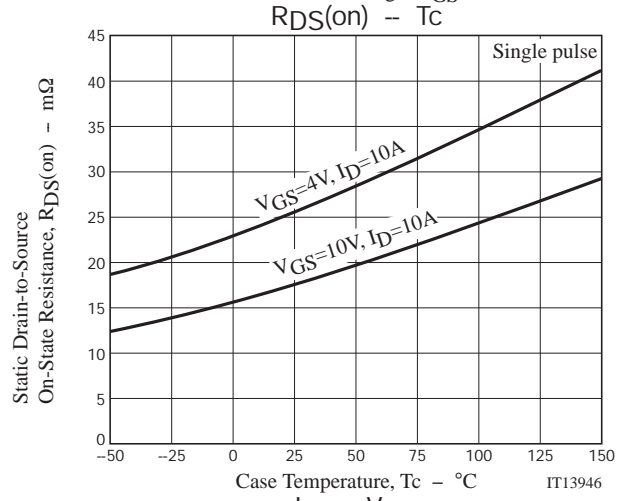
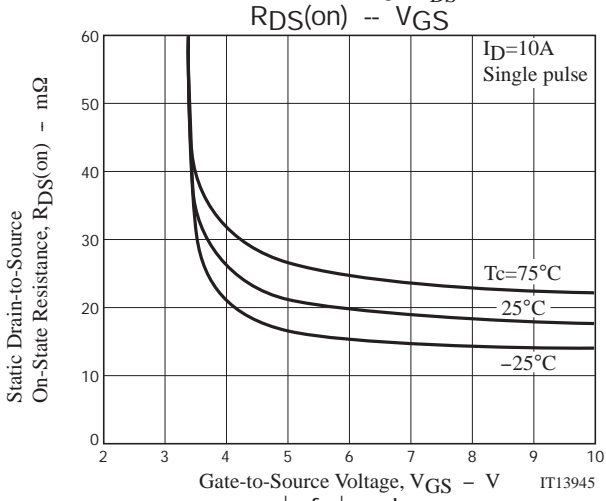
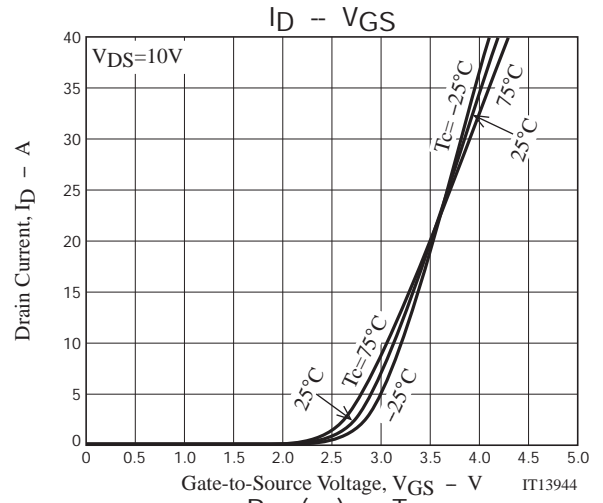
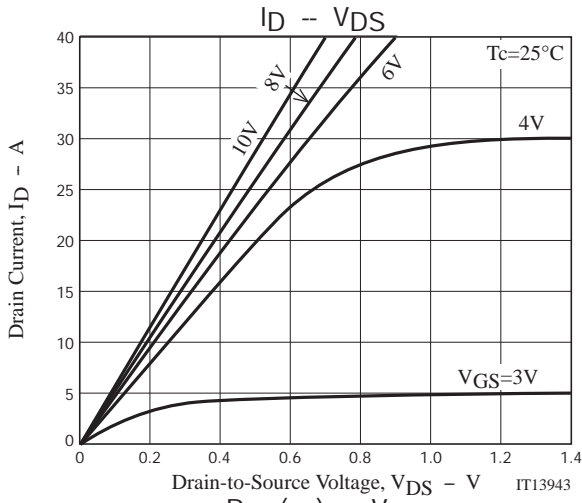
## Switching Time Test Circuit



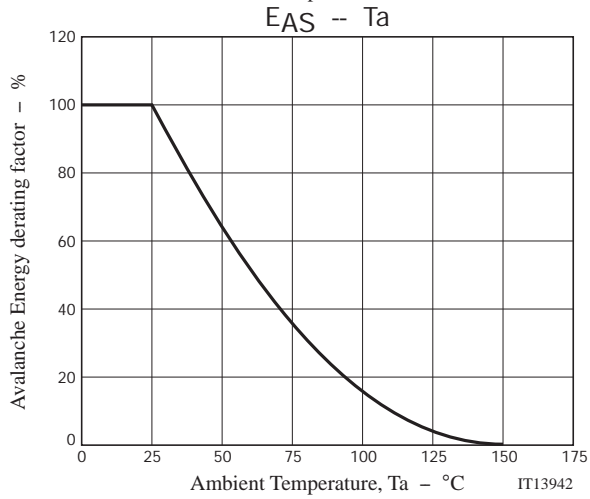
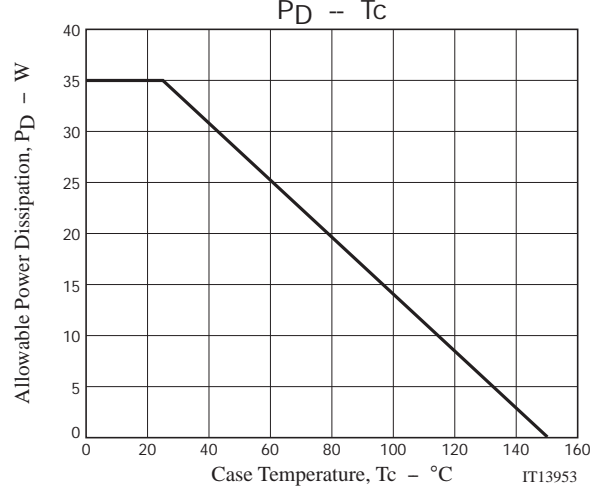
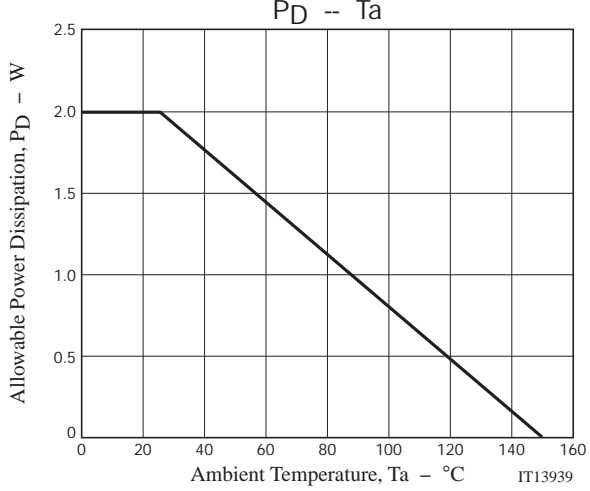
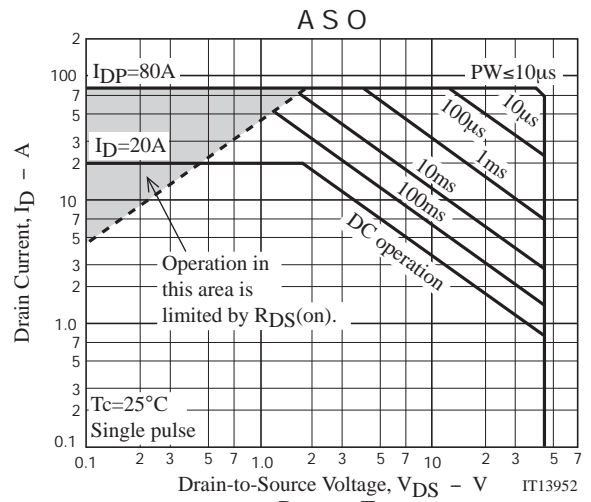
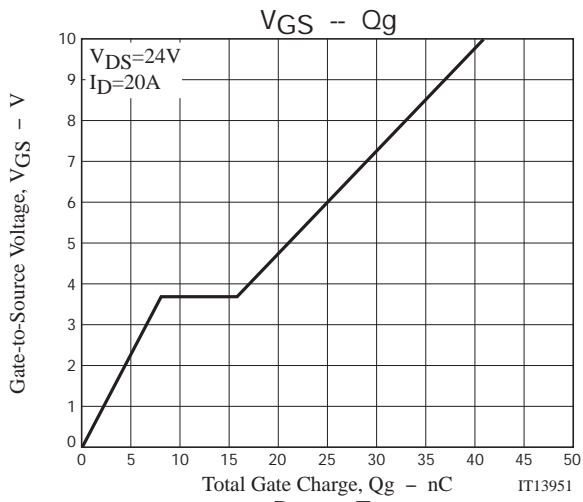
## Avalanche Resistance Test Circuit



# 2SK4204LS



# 2SK4204LS



Note on usage : Since the 2SK4204LS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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