Ordering number : ENA0939

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

6LN04S — General-Purpose Switching Device Applications

Features

- 1.5V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		200	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	800	mA
Allowable Power Dissipation	P_D	When mounted on glass epoxy substrate (145mmX80mmX1.6mm)	0.15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

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	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=100μA	0.4		1.3	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=100mA	280	480		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=100mA, V_{GS}=4V		2.2	2.9	Ω
	$R_{DS(on)2}$	I_D=50mA, V_{GS}=2.5V		2.4	3.4	Ω
	$R_{DS(on)3}$	I_D=10mA, V_{GS}=1.5V		3.5	7.0	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		26		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		5.9		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		3.2		pF

Marking : YS

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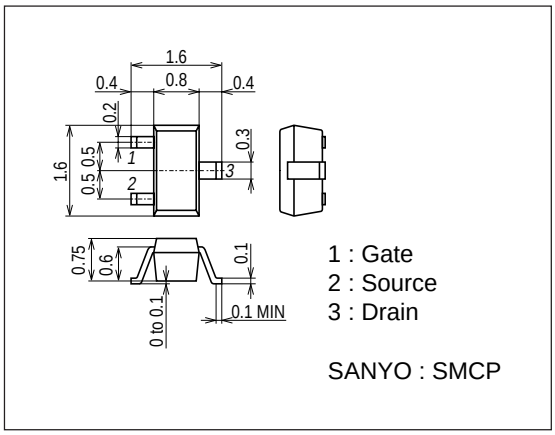
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		18.5		ns
Rise Time	t_r	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		146		ns
Fall Time	t_f	See specified Test Circuit.		69		ns
Total Gate Charge	Qg	V_{DS}=30V, V_{GS}=4V, I_D=200mA		1.0		nC
Gate-to-Source Charge	Qgs	V_{DS}=30V, V_{GS}=4V, I_D=200mA		0.2		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=30V, V_{GS}=4V, I_D=200mA		0.2		nC
Diode Forward Voltage	V_{SD}	I_S=200mA, V_{GS}=0V		0.83	1.2	V

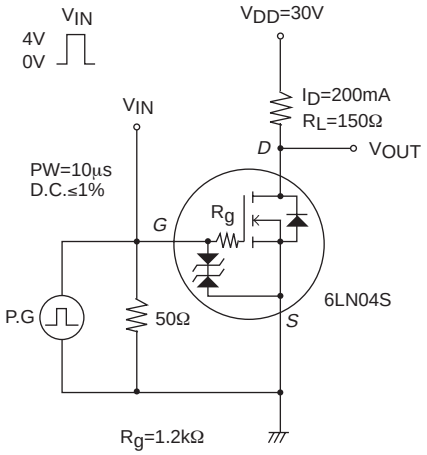
Package Dimensions

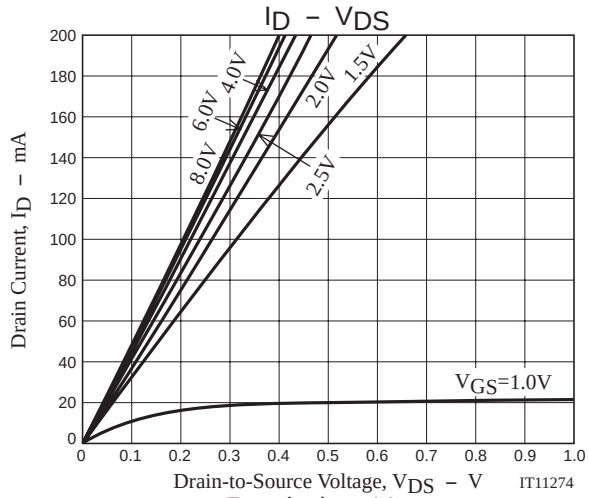
unit : mm (typ)

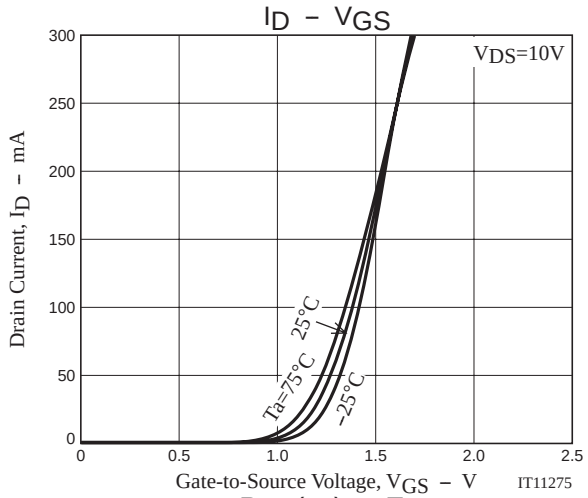
7027-004

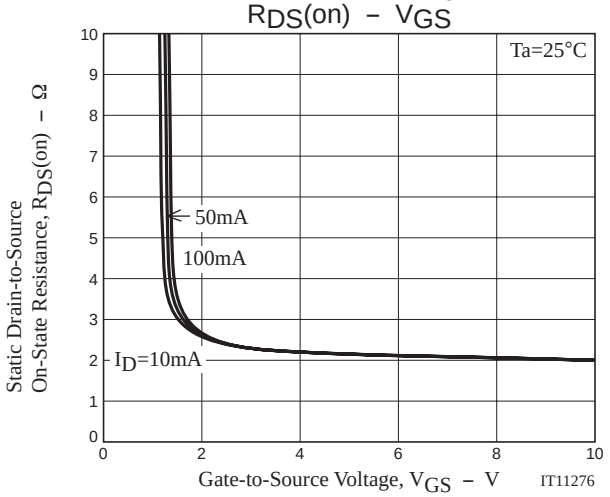


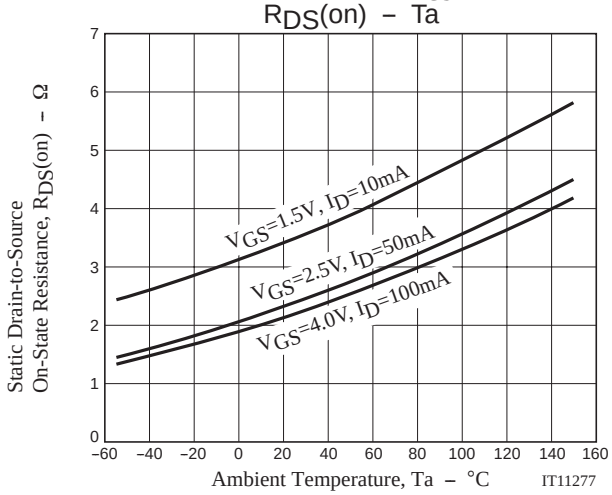
Switching Time Test Circuit

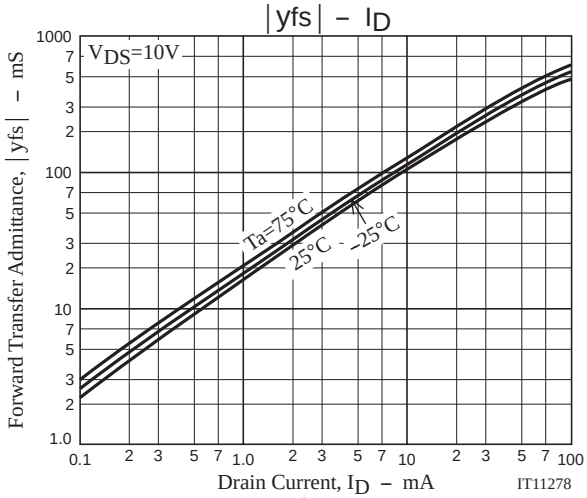


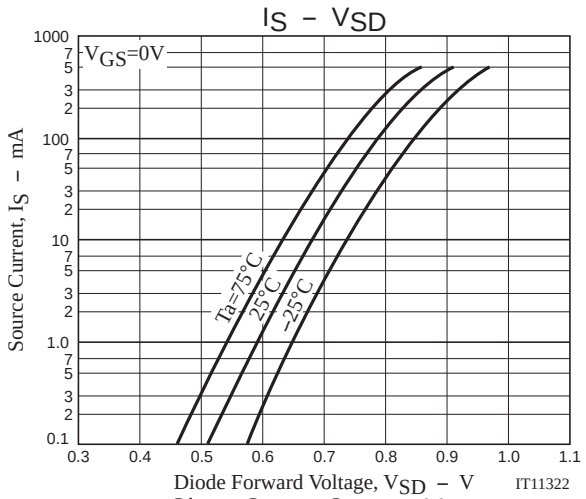


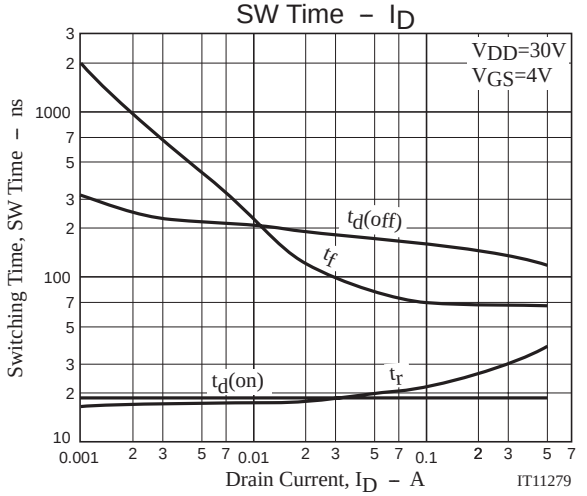


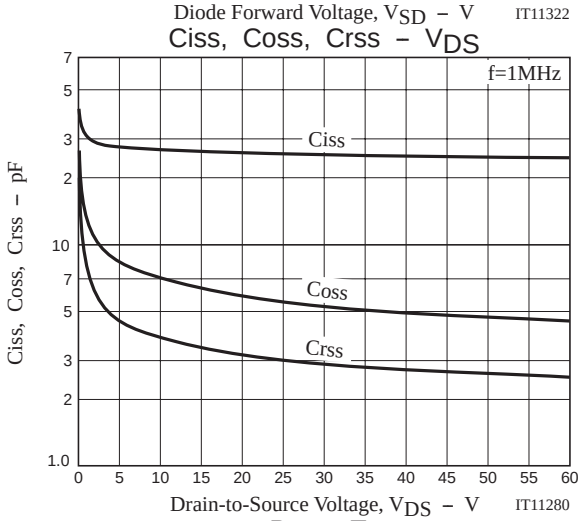


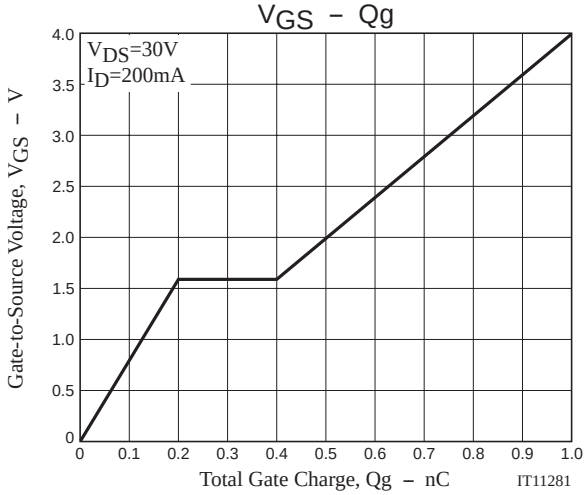


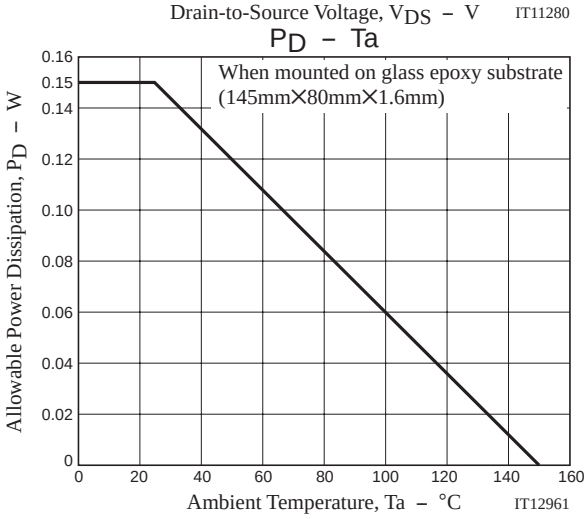

|yfs| – ID
VDS=10V
Ta=75°C
25°C
–25°C
Forward Transfer Admittance, |yfs| – mS
Drain Current, ID – mA
IT11278


IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – mA
Diode Forward Voltage, VSD – V
IT11322


SW Time – ID
VDD=30V
VGS=4V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT11279


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT11280


VGS – Qg
VDS=30V
ID=200mA
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT11281


PD – Ta
When mounted on glass epoxy substrate
(145mm×80mm×1.6mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT12961

Note on usage : Since the 6LN04S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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