Ordering number : ENN6681

P-Channel Silicon MOSFET

3LP01S

Ultrahigh-Speed Switching Applications

Features

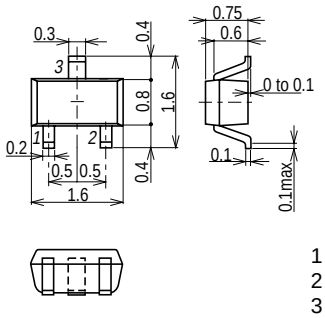
- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Package Dimensions

unit : mm

2192

[3LP01S]



1 : Gate
2 : Source
3 : Drain

SANYO : SMCP

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-30	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		-0.1	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	-0.4	A
Allowable Power Dissipation	P_D		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}=0	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0			-10	μA
Gate-to-Sourse Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=-10V, I_D=-100μA	-0.4		-1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=-10V, I_D=-50mA	80	110		mS
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-50mA, V_{GS}=-4V		8	10.4	Ω
	$R_{DS}(on)2$	I_D=-30mA, V_{GS}=-2.5V		11	15.4	Ω
	$R_{DS}(on)3$	I_D=-1mA, V_{GS}=-1.5V		27	54	Ω

Continued on next page.

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■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

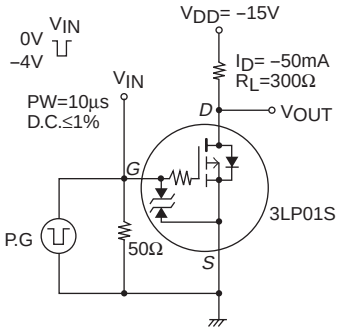
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

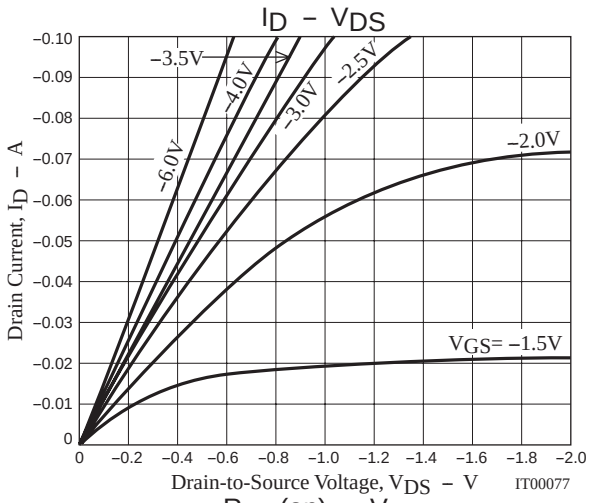
Continued from preceding page.

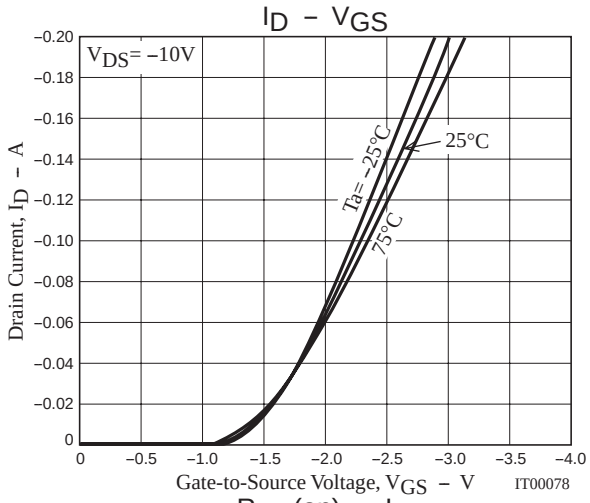
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		7.5		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		5.7		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		1.8		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit		24		ns
Rise Time	t_{r}	See specified Test Circuit		55		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit		120		ns
Fall Time	t_{f}	See specified Test Circuit		130		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–100mA		1.43		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–100mA		0.18		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_{D}=–100mA		0.25		nC
Diode Forward Voltage	V_{SD}	I_{S}=–100mA, V_{GS}=0		–0.83	–1.2	V

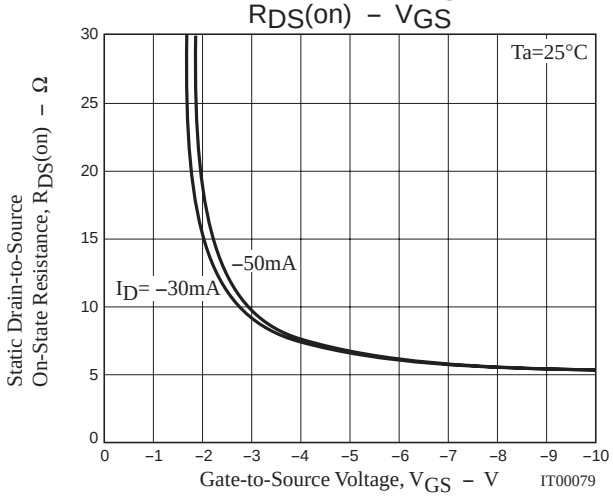
Marking : XA

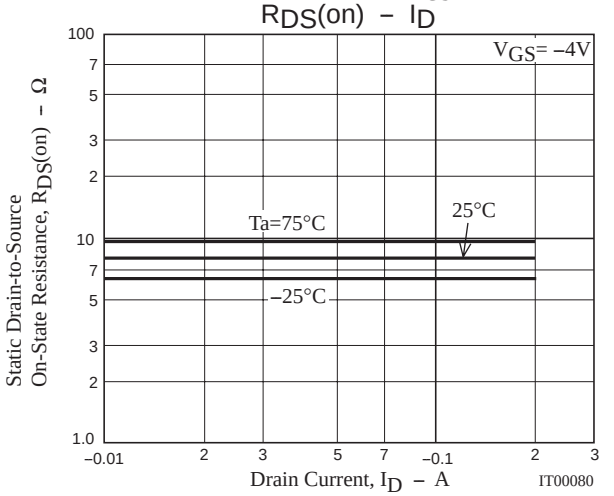
Switching Time Test Circuit

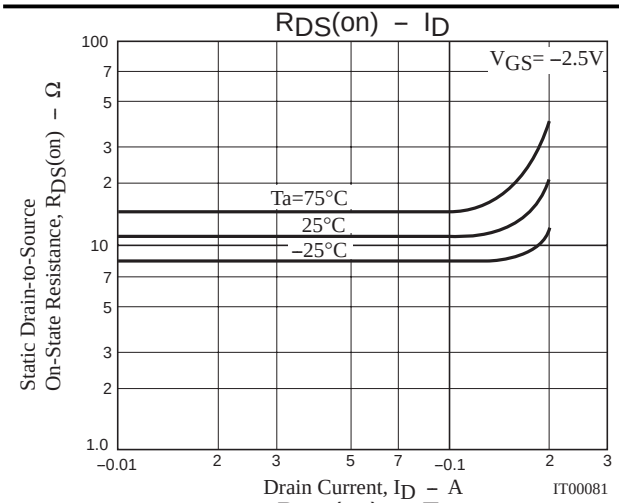


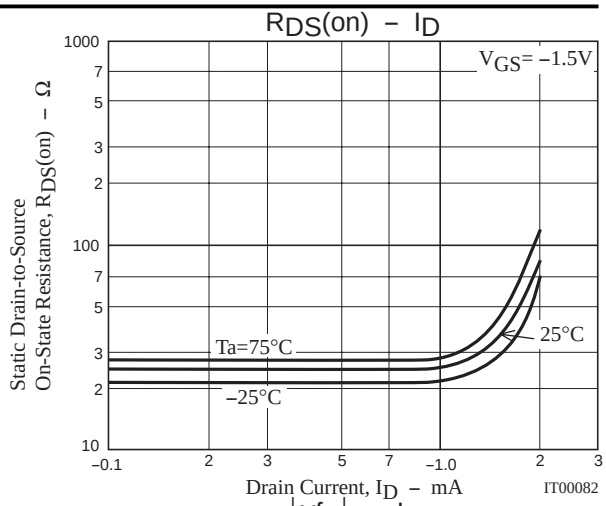


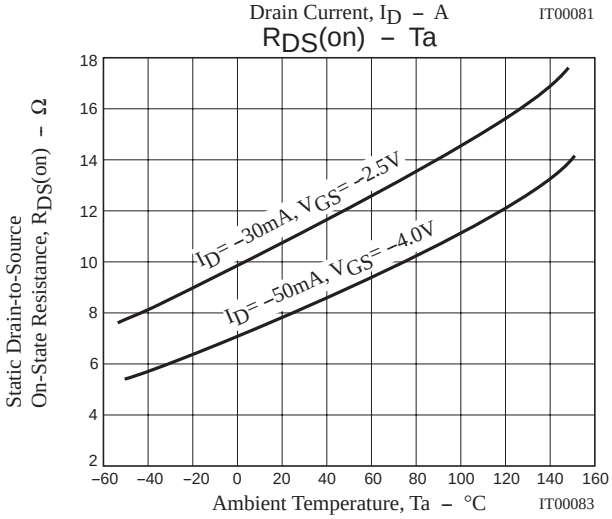


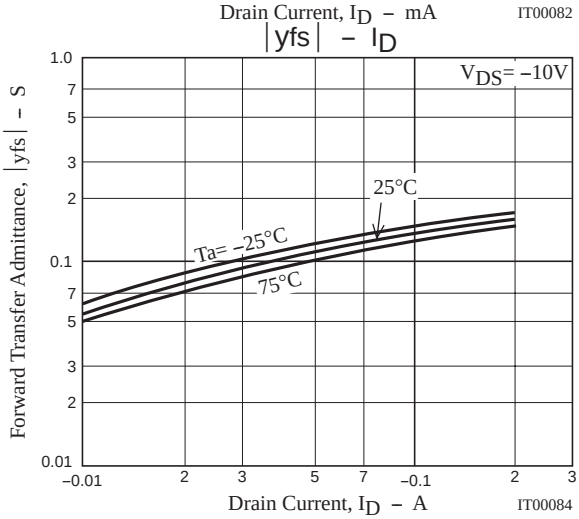


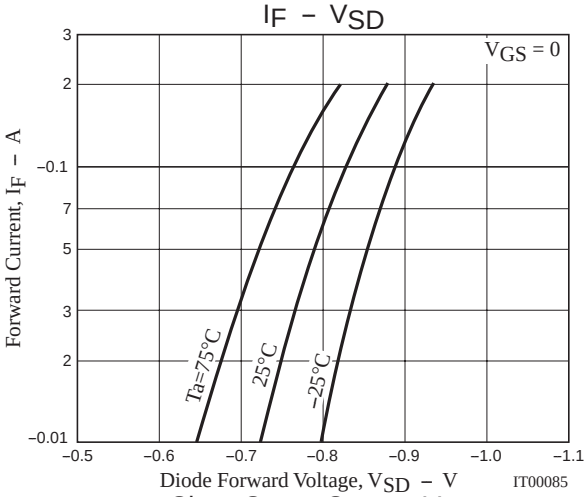


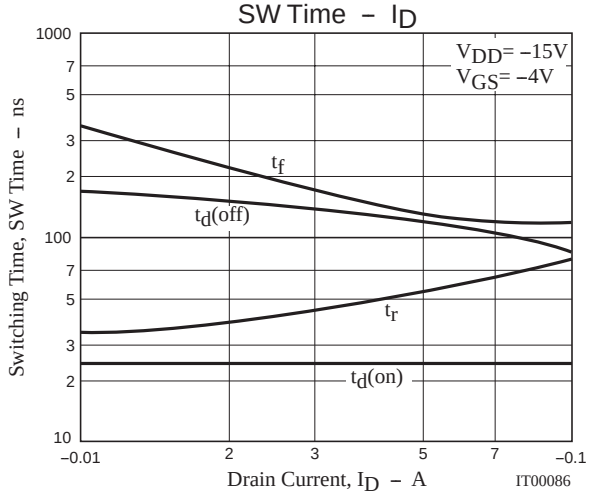

RDS(on) – ID
VGS= –2.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00081

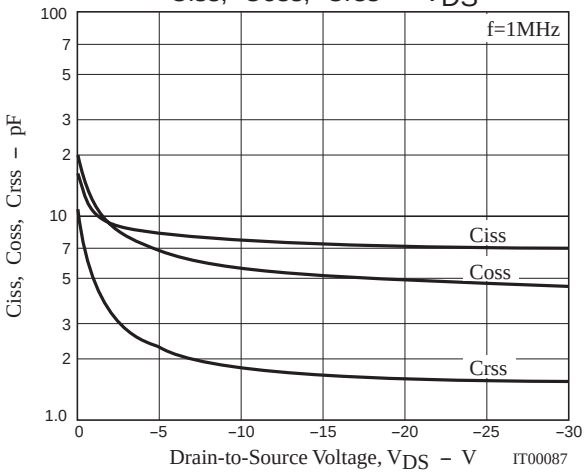

RDS(on) – ID
VGS= –1.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – mA
IT00082

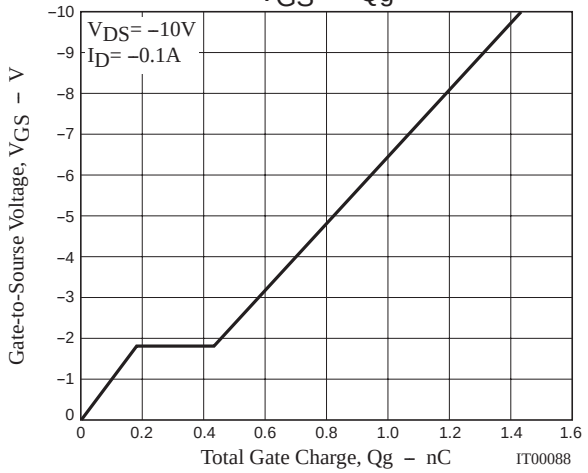

RDS(on) – Ta
ID= –30mA, VGS= –2.5V
ID= –50mA, VGS= –4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT00083

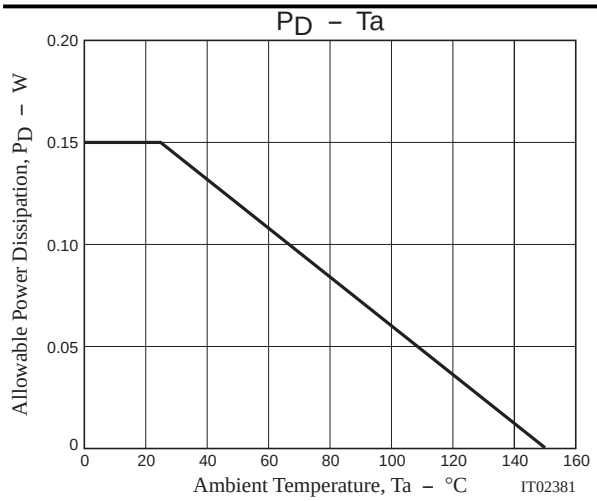

|yfs| – ID
VDS= –10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT00084


IF – VSD
VGS = 0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT00085


SW Time – ID
VDD= –15V
VGS= –4V
tf
td(off)
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00086


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT00087


VGS – Qg
VDS= –10V
ID= –0.1A
Gate-to-Sourse Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00088



Note on usage : Since the 3LP01S is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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