Ordering number : ENN6645

P-Channel Silicon MOSFET

3LP01C

Ultrahigh-Speed Switching Applications

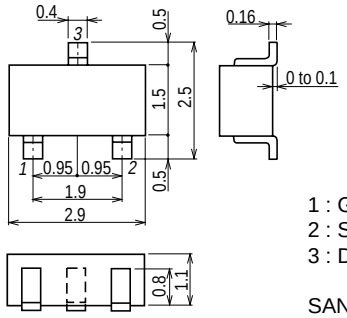
Features

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

Package Dimensions

unit : mm
2091A

[3LP01C]



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		0.25	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

Continued on next page.

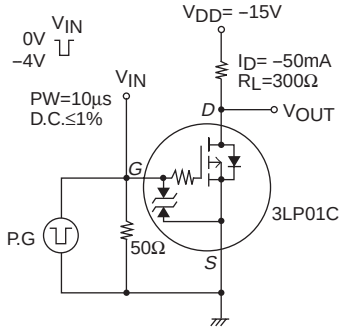
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

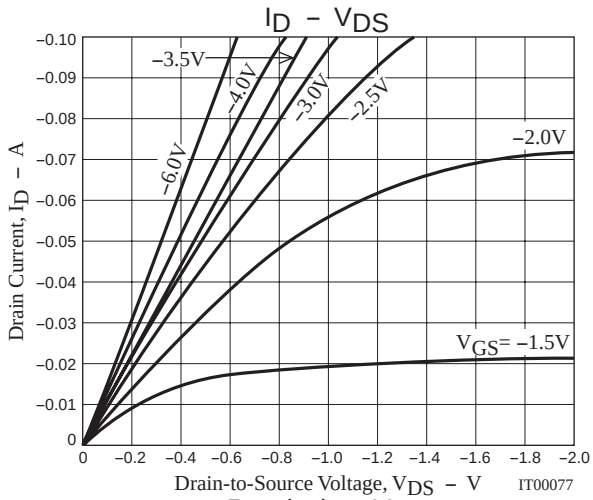
Continued from preceding page.

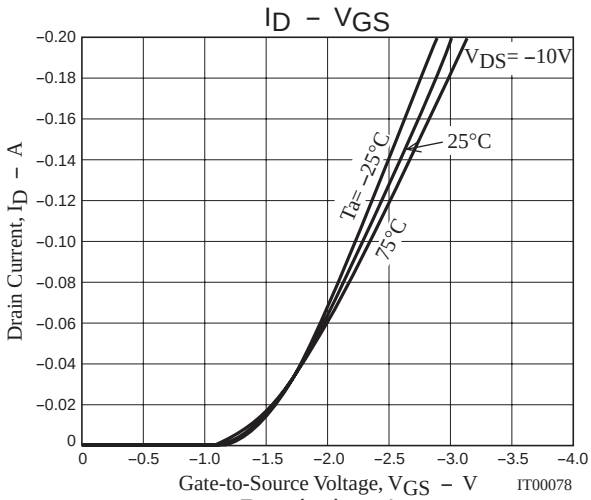
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-50mA, V_{GS}=-4V		8	10.4	Ω
	$R_{DS}(on)2$	I_D=-30mA, V_{GS}=-2.5V		11	15.4	Ω
	$R_{DS}(on)3$	I_D=-1mA, V_{GS}=-1.5V		27	54	Ω
Input Capacitance	Ciss	V_{DS}=-10V, f=1MHz		7.5		pF
Output 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

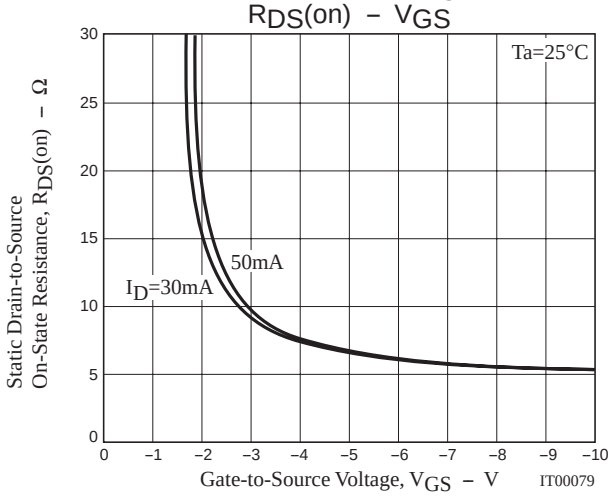
Marking : XA

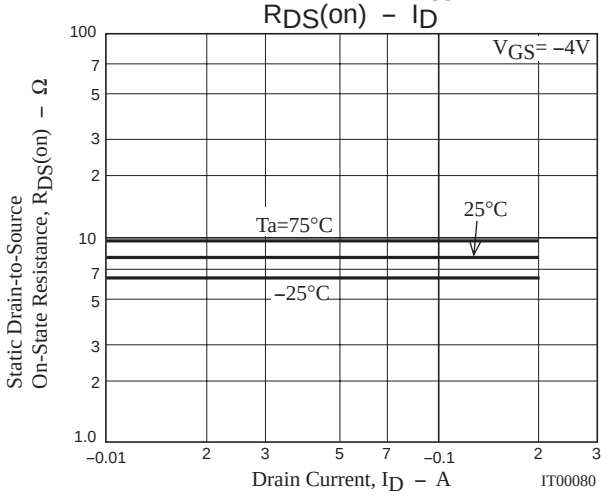
Switching Time Test Circuit

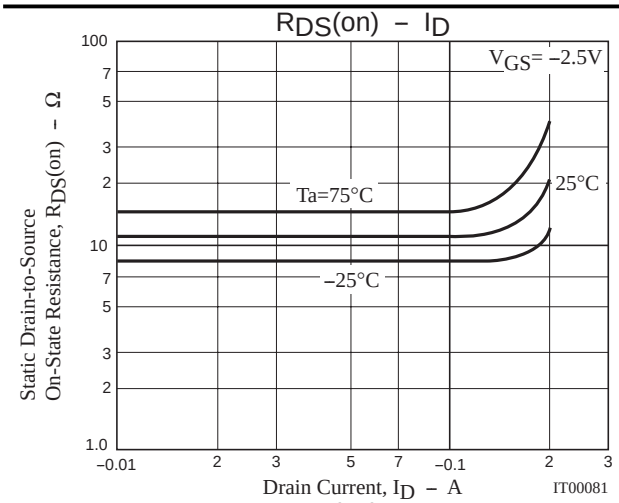


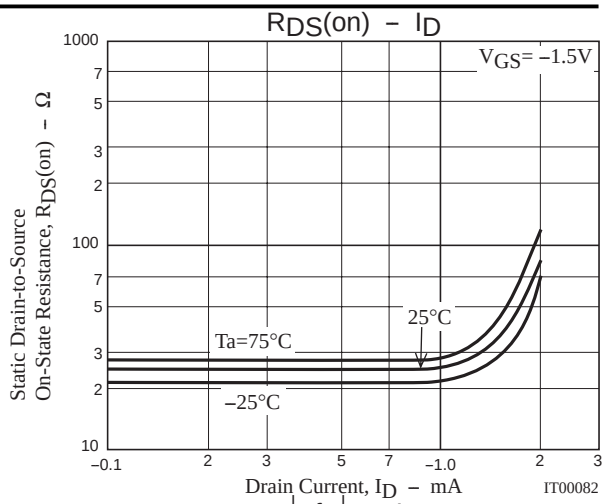


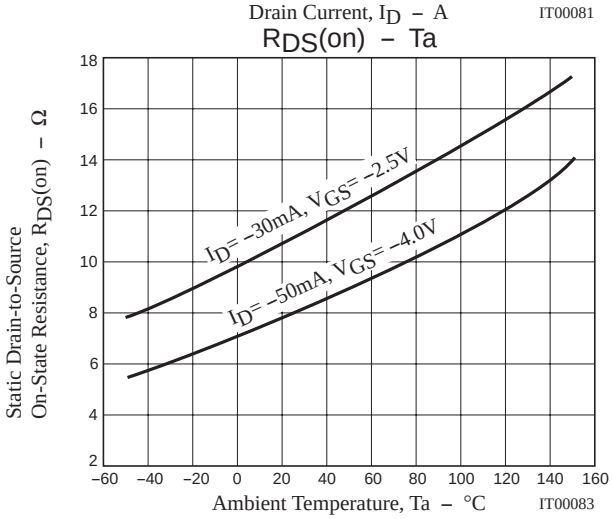


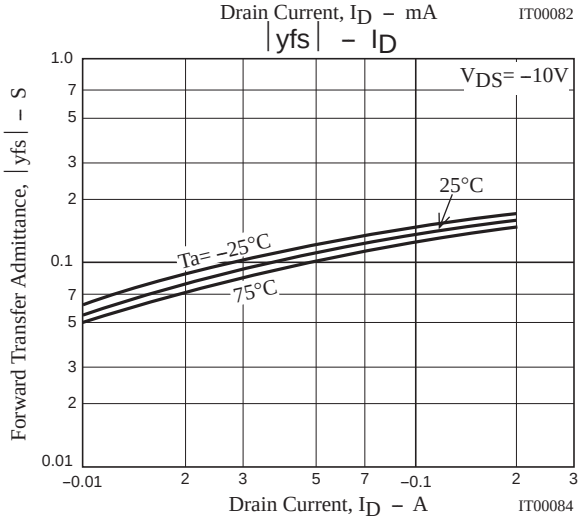


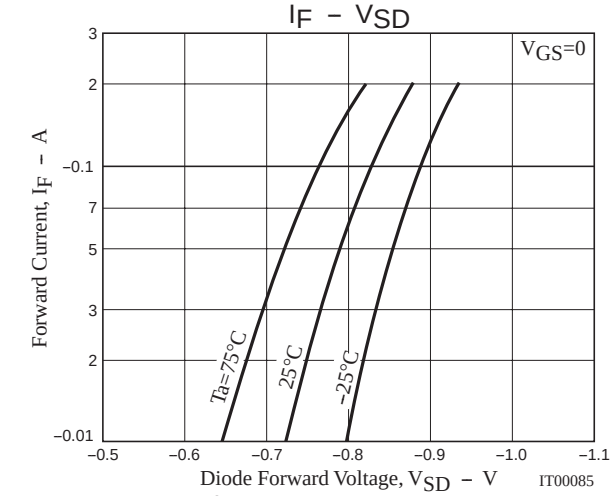


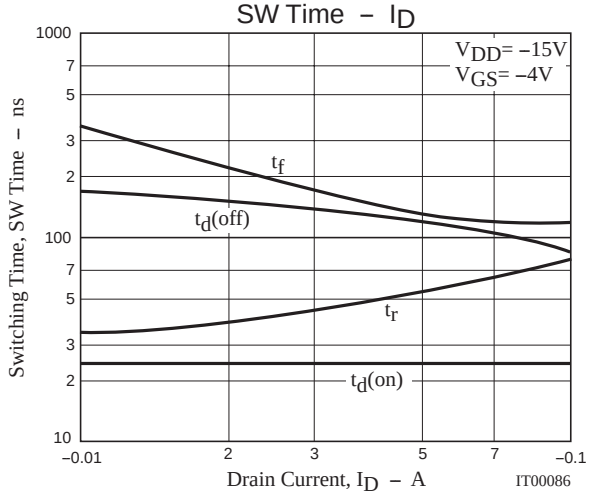

RDS(on) – ID
VGS= –2.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00081

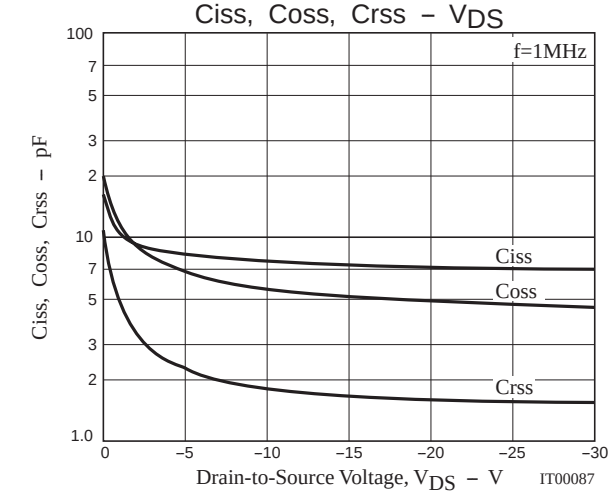

RDS(on) – ID
VGS= –1.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – mA
IT00082

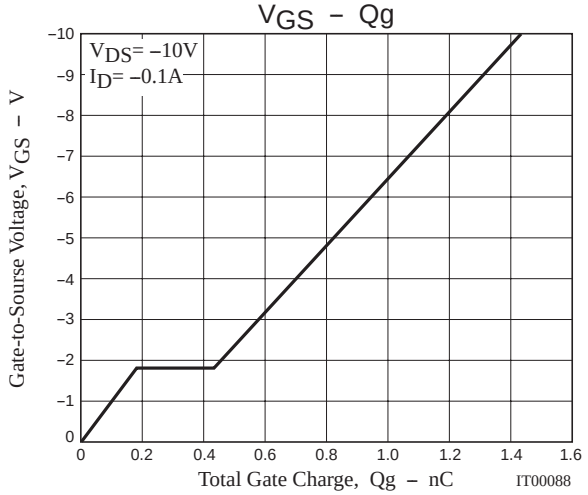

RDS(on) – Ta
ID= –30mA, VGS= –2.5V
ID= –50mA, VGS= –4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT00083

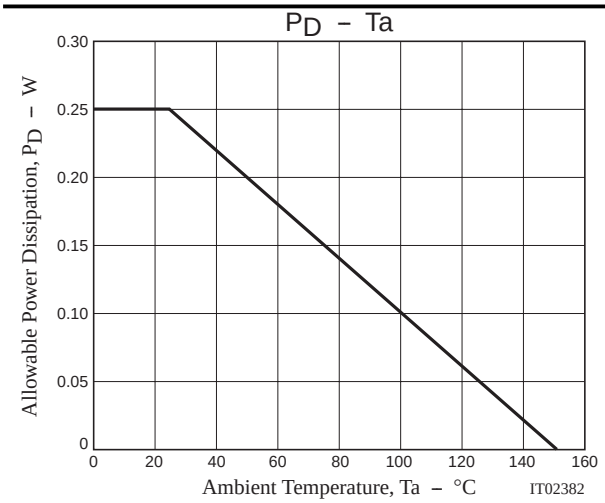

|yfs| – ID
VDS= –10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT00084


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 3LP01C is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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