Ordering number : ENN6666

P-Channel Silicon MOSFET

5LP01S

Ultrahigh-Speed Switching Applications

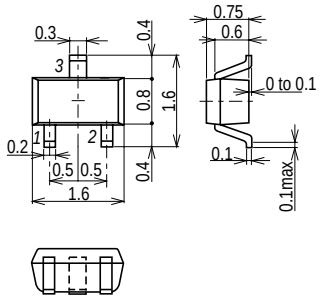
Features

- Low ON-resistance.
- Ultrahigh-Speed Switching.
- 2.5V drive.

Package Dimensions

unit : mm
2124

[5LP01S]



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}		−50	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		−0.07	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−0.28	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	−50			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−50V, 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=−40mA	70	100		mS

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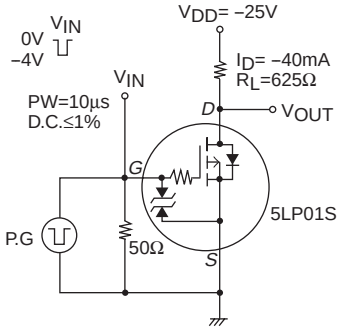
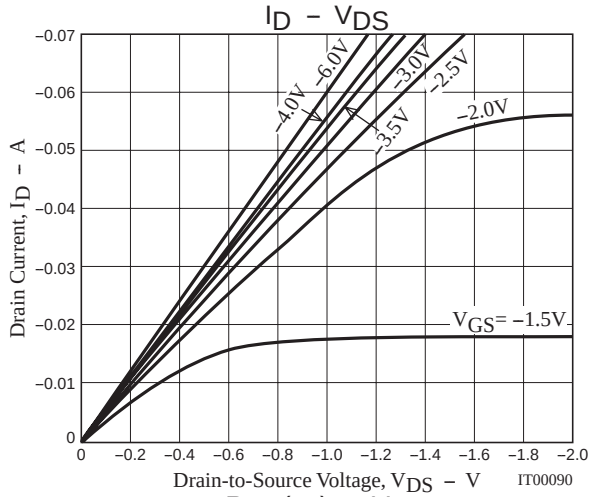
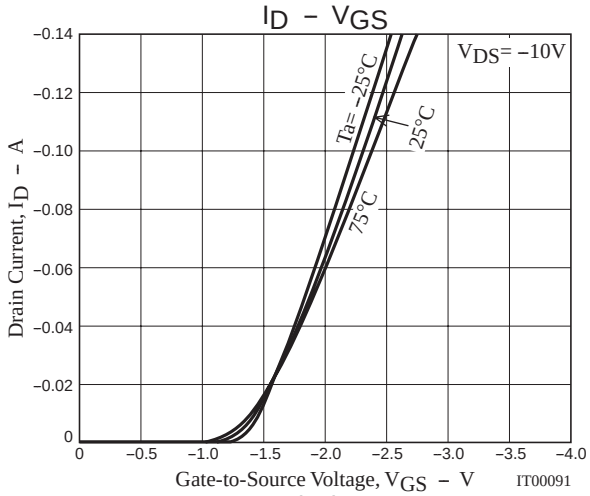
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=-40mA, V_{GS}=-4V		18	23	Ω
	$R_{DS}(on)2$	I_D=-20mA, V_{GS}=-2.5V		20	28	Ω
	$R_{DS}(on)3$	I_D=-5mA, V_{GS}=-1.5V		30	60	Ω
Input Capacitance	Ciss	V_{DS}=-10V, f=1MHz		7.4		pF
Output Capacitance	Coss	V_{DS}=-10V, f=1MHz		4.2		pF
Reverse Transfer Capacitance	Crss	V_{DS}=-10V, f=1MHz		1.3		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		20		ns
Rise Time	t_r	See specified Test Circuit		35		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		160		ns
Fall Time	t_f	See specified Test Circuit		150		ns
Total Gate Charge	Qg	V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA		1.40		nC
Gate-to-Source Charge	Qgs	V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA		0.16		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA		0.23		nC
Diode Forward Voltage	V_{SD}	I_S=-70mA, V_{GS}=0		-0.85	-1.2	V

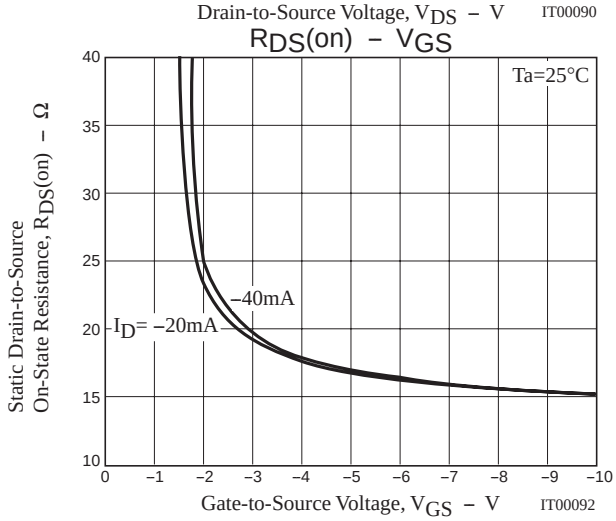
Marking : XB

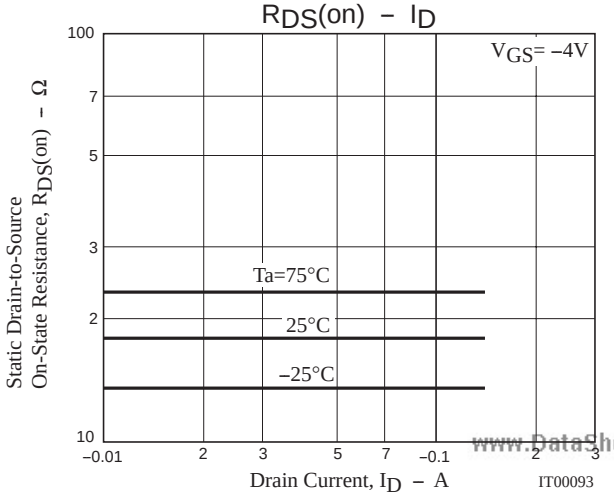
Switching Time Test Circuit

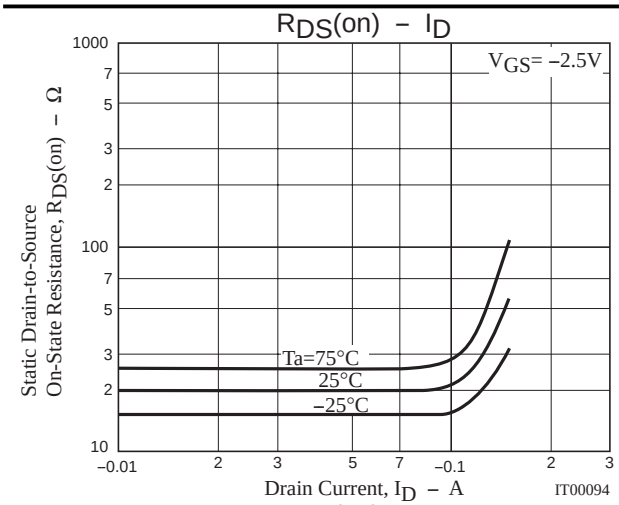


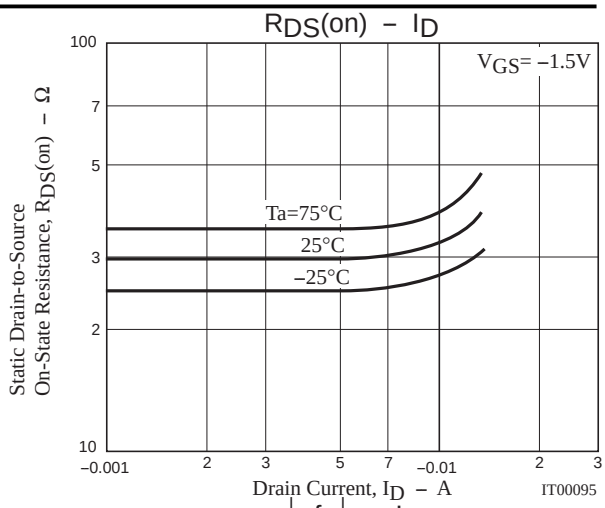


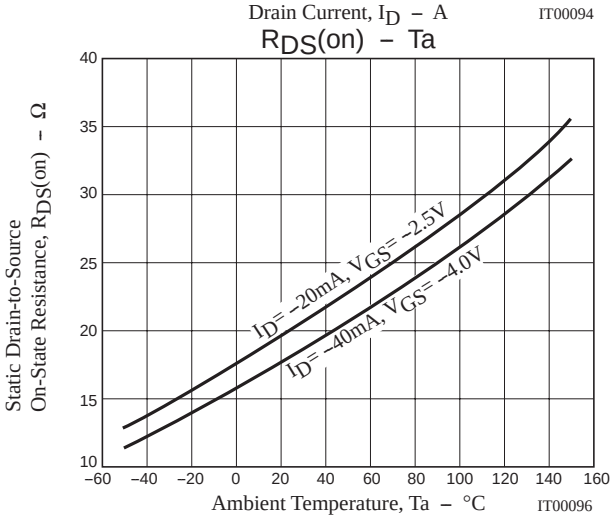


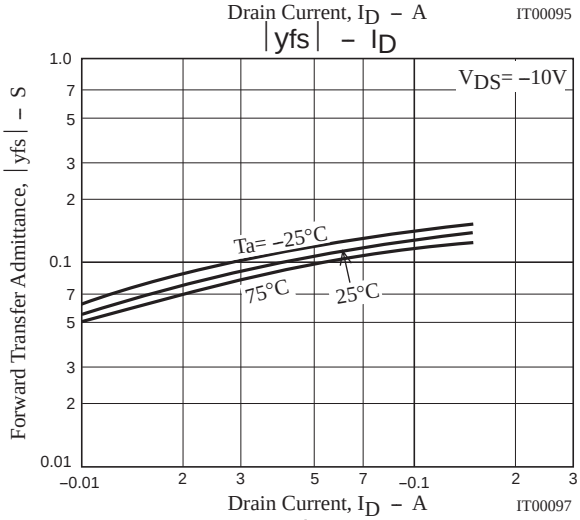


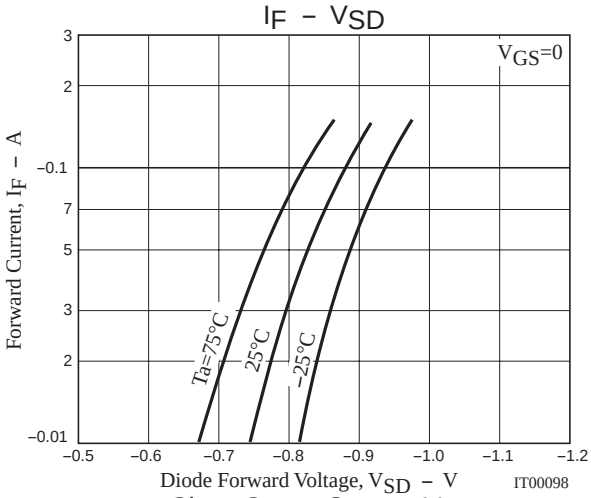


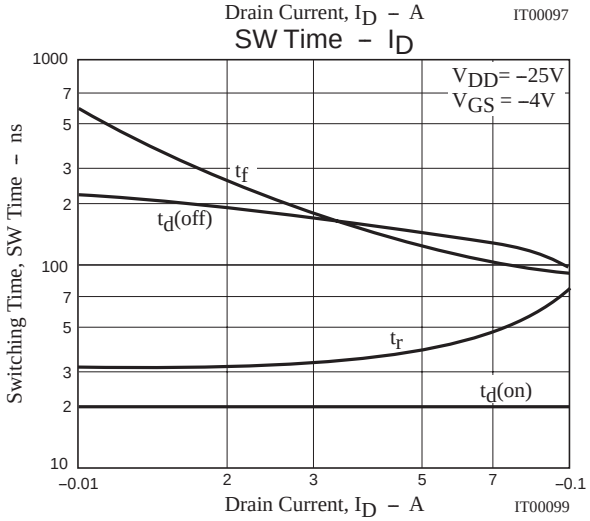


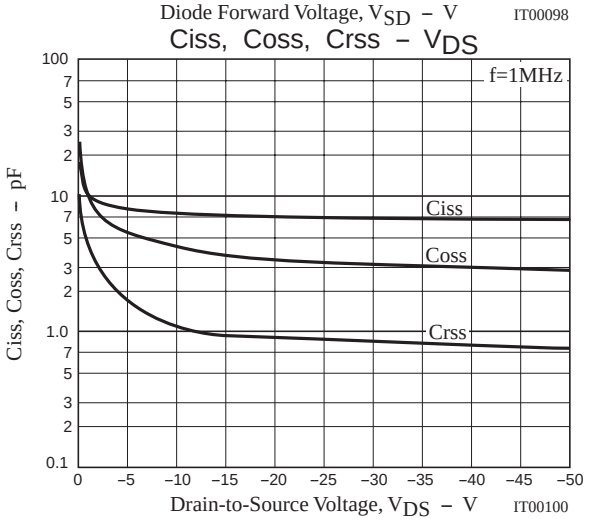


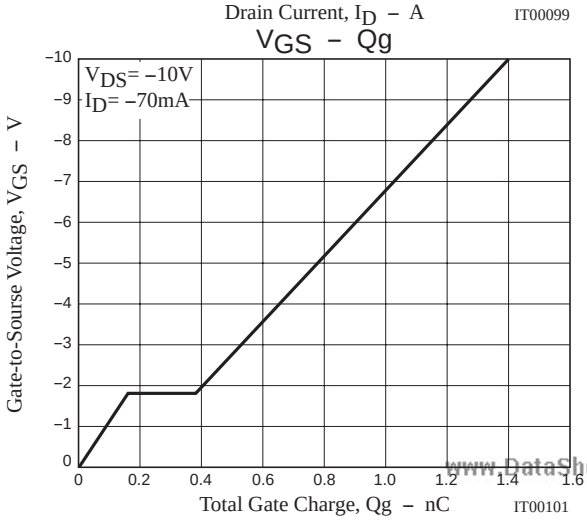


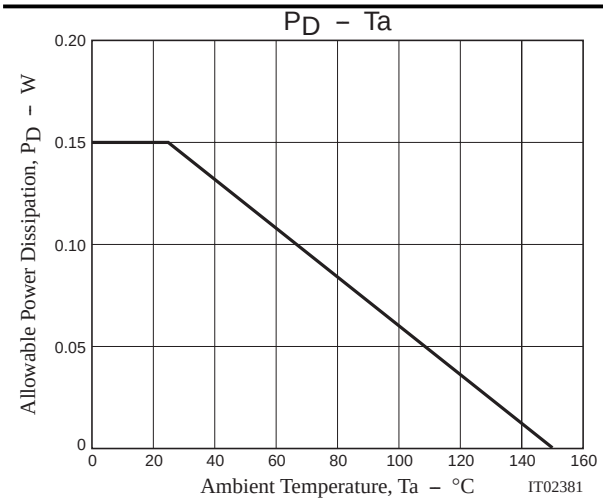












Note on usage : Since the 5LP01S is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.