



5LP01S — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		-50	V
Gate-to-Source Voltage	V_{GS}		± 10	V
Drain Current (DC)	I_D		-0.07	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-0.28	A
Allowable Power Dissipation	P_D		0.15	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}$, $V_{GS}=0\text{V}$	-50			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-50\text{V}$, $V_{GS}=0\text{V}$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}$, $I_D=-100\mu\text{A}$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}$, $I_D=-40\text{mA}$	70	100		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-40\text{mA}$, $V_{GS}=-4\text{V}$		18	23	Ω
	$R_{DS(on)2}$	$I_D=-20\text{mA}$, $V_{GS}=-2.5\text{V}$		20	28	Ω
	$R_{DS(on)3}$	$I_D=-5\text{mA}$, $V_{GS}=-1.5\text{V}$		30	60	Ω
Input Capacitance	C_{iss}	$V_{DS}=-10\text{V}$, $f=1\text{MHz}$		7.4		pF
Output Capacitance	C_{oss}	$V_{DS}=-10\text{V}$, $f=1\text{MHz}$		4.2		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-10\text{V}$, $f=1\text{MHz}$		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

Marking : XB

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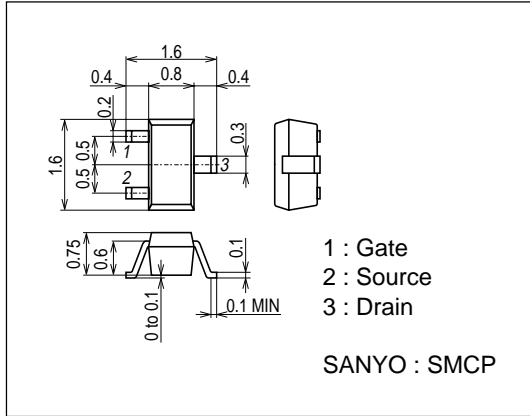
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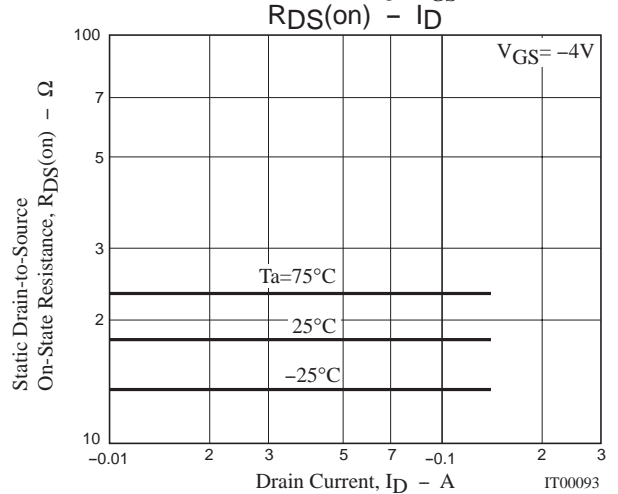
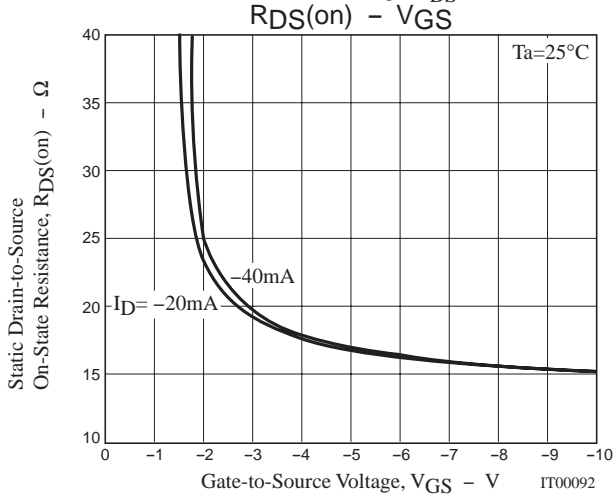
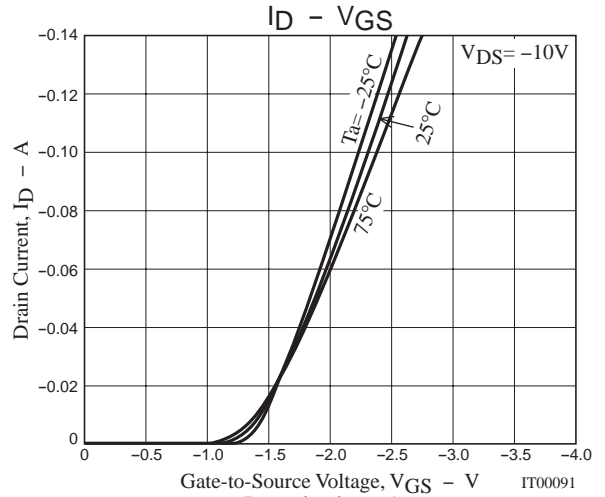
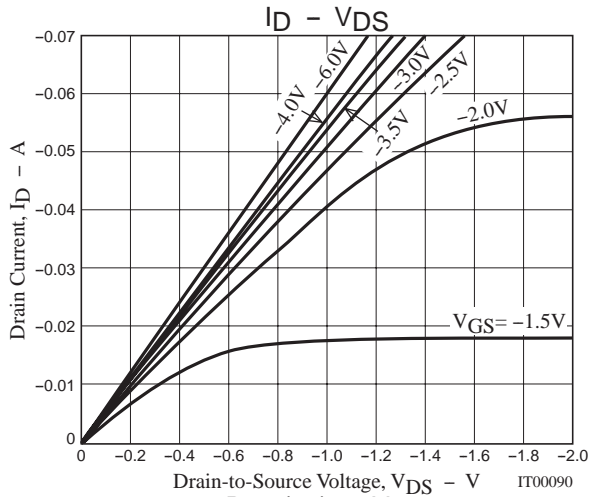
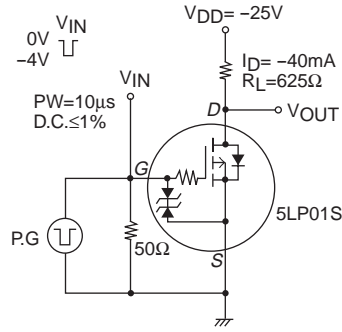
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		1.40		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		0.16		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-10V, V_{GS}=-10V, I_D=-70mA$		0.23		nC
Diode Forward Voltage	V_{SD}	$I_S=-70mA, V_{GS}=0V$		-0.85	-1.2	V

Package Dimensions

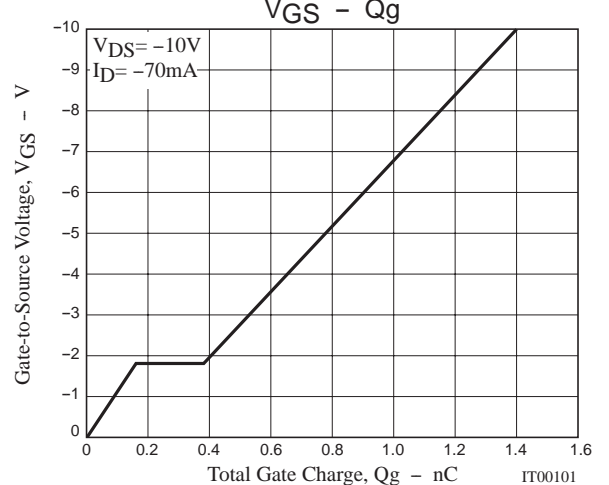
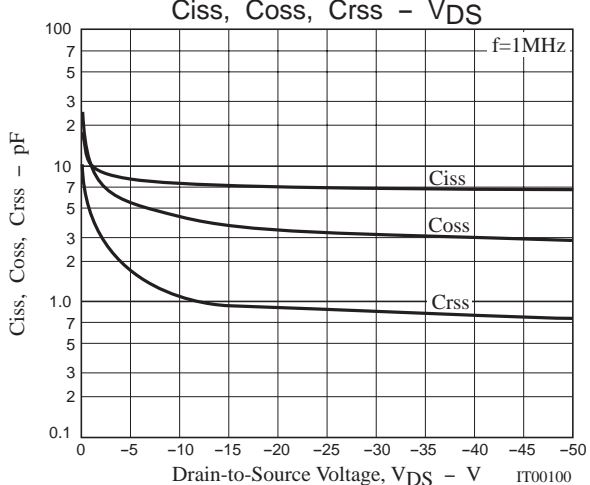
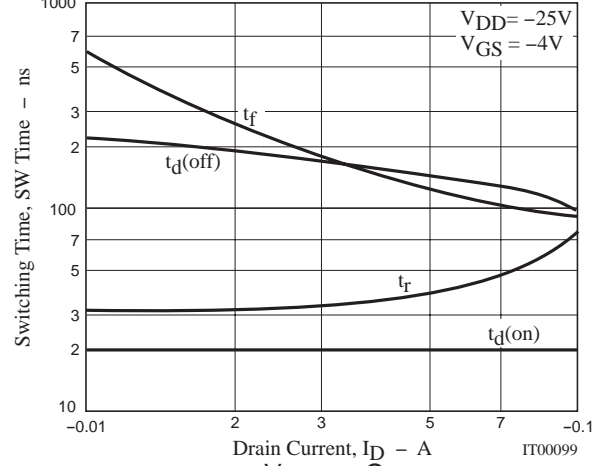
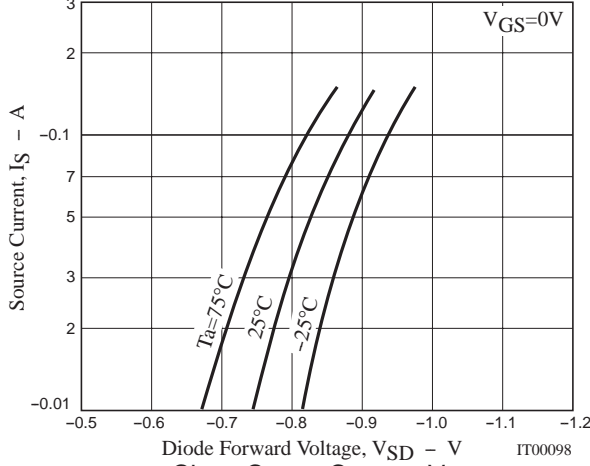
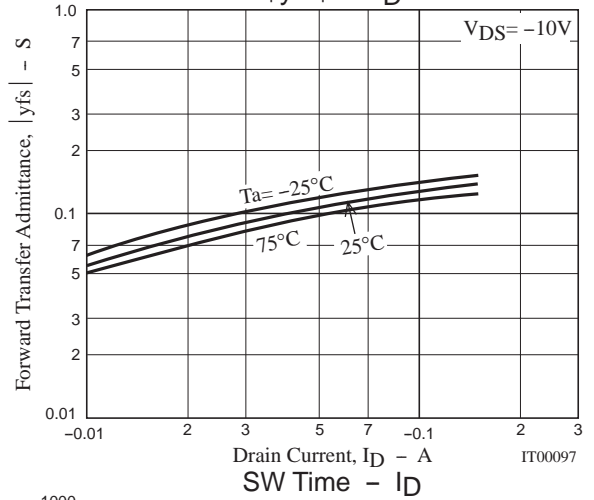
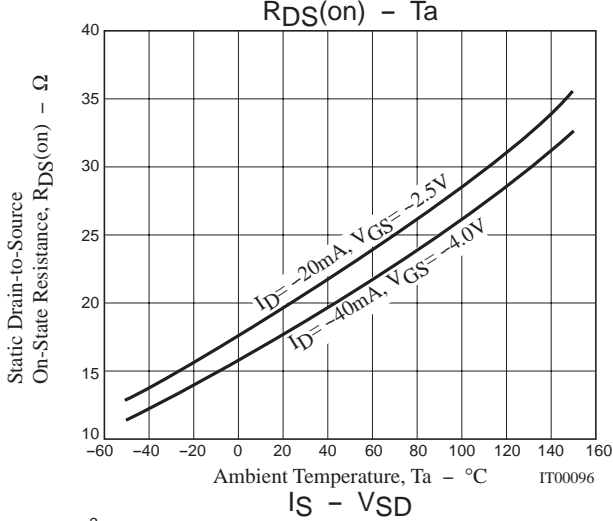
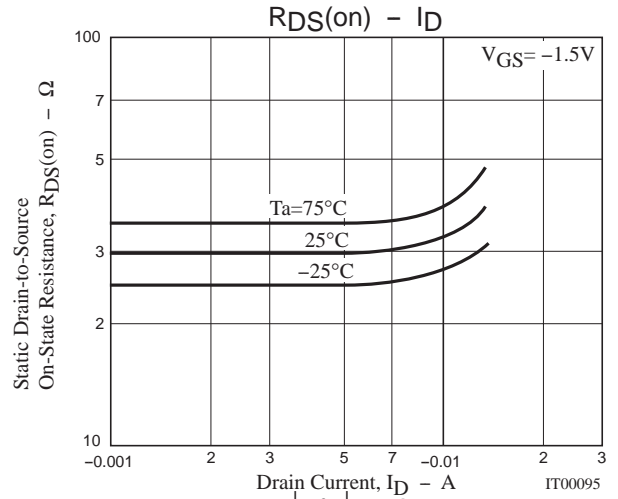
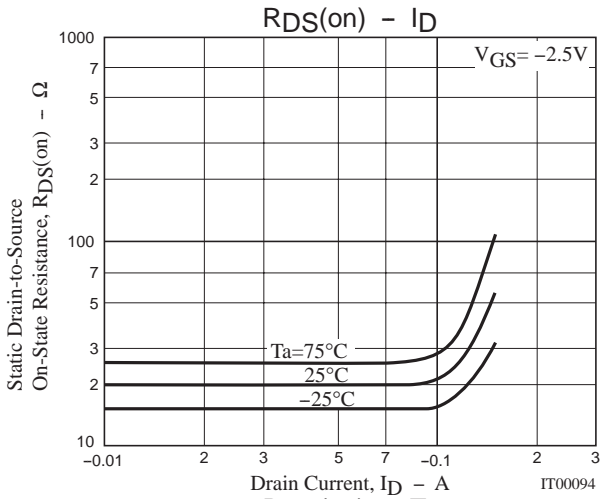
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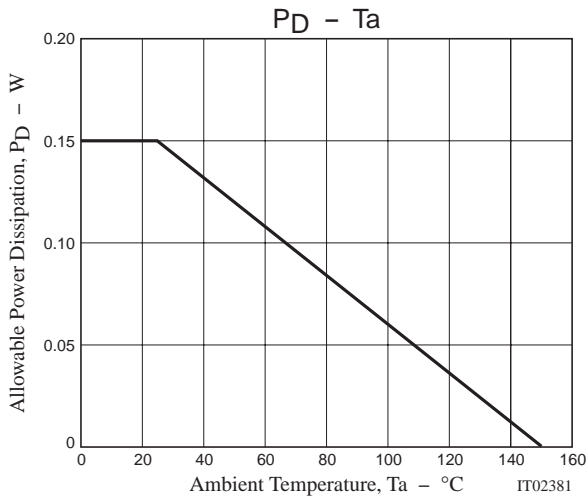
Switching Time Test Circuit



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Note on usage : Since the 5LP01S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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