

## 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 Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		-50	V
Gate-to-Source Voltage	VGSS		±10	V
Drain Current (DC)	ID		-0.07	A
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	-0.28	A
Allowable Power Dissipation	PD		0.15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

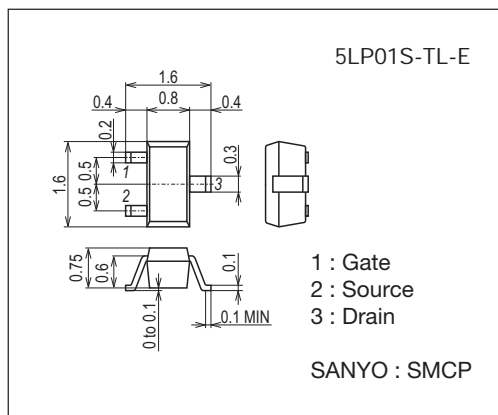
This product is designed to "ESD immunity < 200V"", so please take care when handling.

\* Machine Model

#### Package Dimensions

unit : mm (typ)

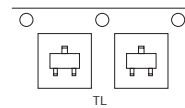
7027-004



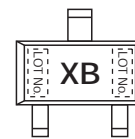
#### Product & Package Information

- Package : SMCP
- JEITA, JEDEC : SC-75, SOT-416
- Minimum Packing Quantity : 3,000 pcs./reel

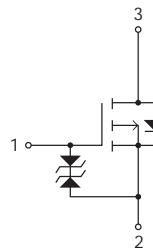
#### Packing Type: TL



#### Marking



#### Electrical Connection

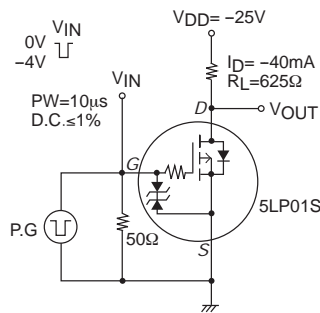


# 5LP01S

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

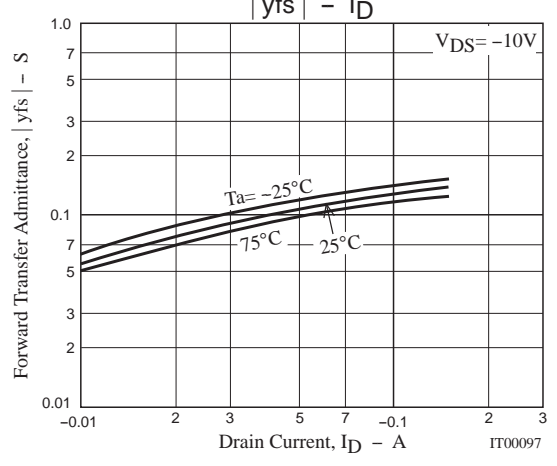
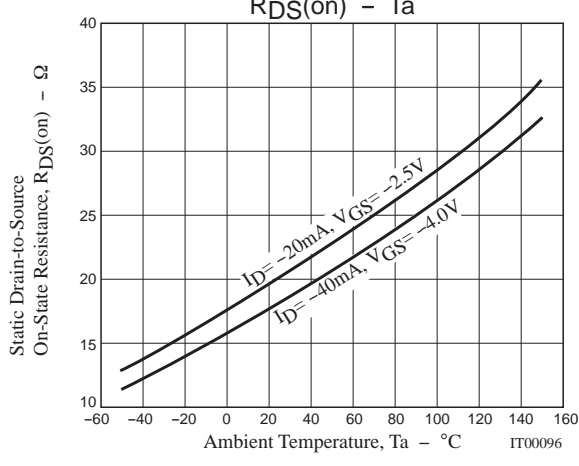
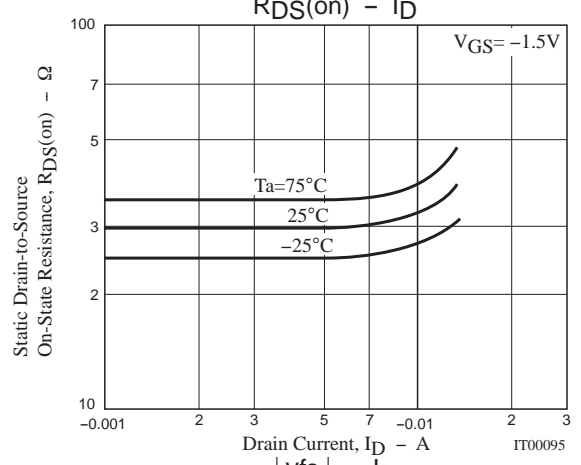
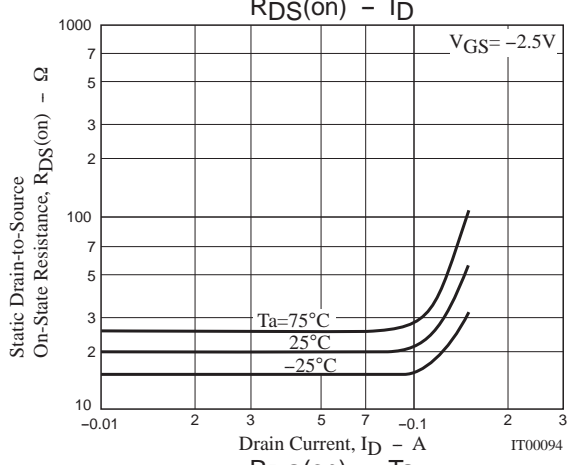
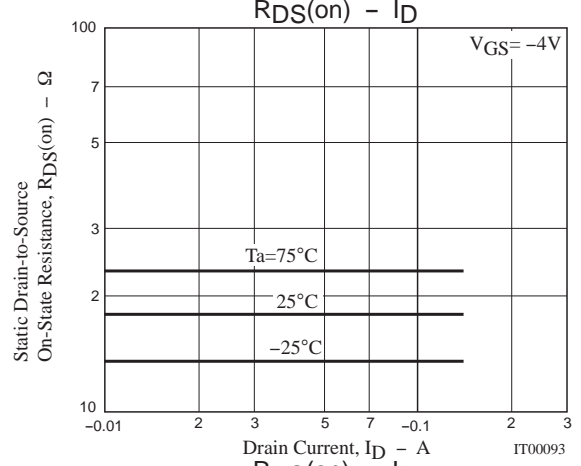
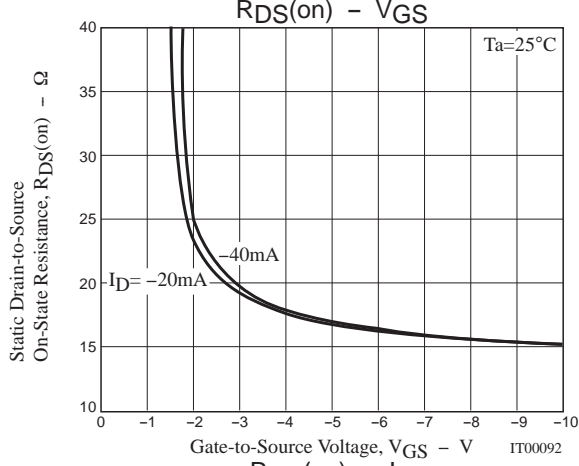
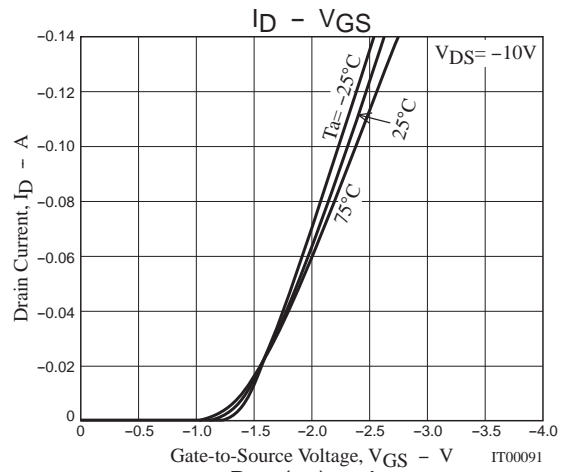
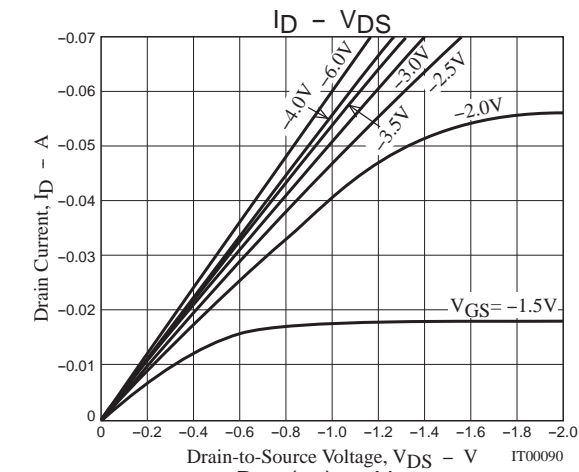
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -50\text{V}, V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
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	$\Omega$
	$R_{DS(on)2}$	$I_D = -20\text{mA}, V_{GS} = -2.5\text{V}$		20	28	$\Omega$
	$R_{DS(on)3}$	$I_D = -5\text{mA}, V_{GS} = -1.5\text{V}$		30	60	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		7.4		pF
Output Capacitance	$C_{oss}$			4.2		pF
Reverse Transfer Capacitance	$C_{rss}$			1.3		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		20	
Rise Time	$t_r$			35		ns
Turn-OFF Delay Time	$t_d(off)$			160		ns
Fall Time	$t_f$			150		ns
Total Gate Charge	$Q_g$	$V_{DS} = -10\text{V}, V_{GS} = -10\text{V}, I_D = -70\text{mA}$			1.40	
Gate-to-Source Charge	$Q_{gs}$			0.16		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.23		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -70\text{mA}, V_{GS} = 0\text{V}$		-0.85	-1.2	V

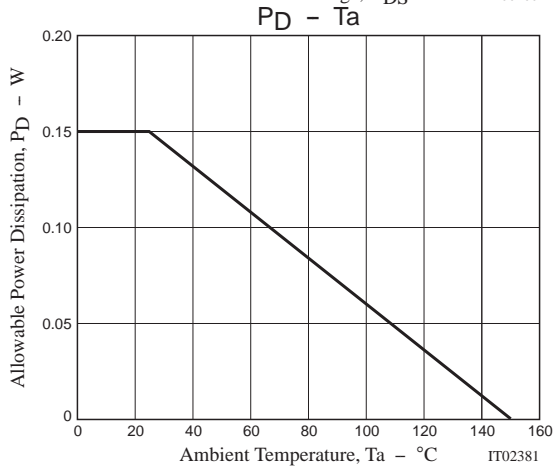
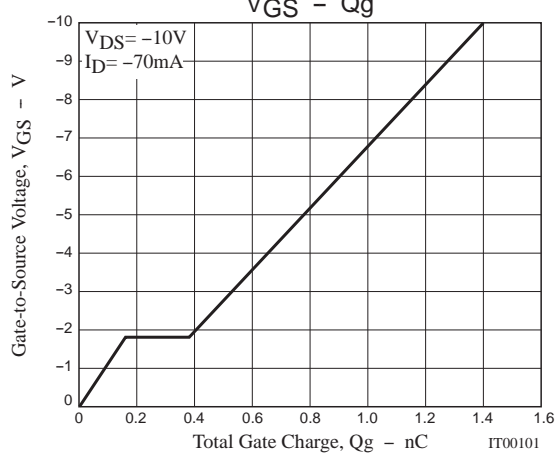
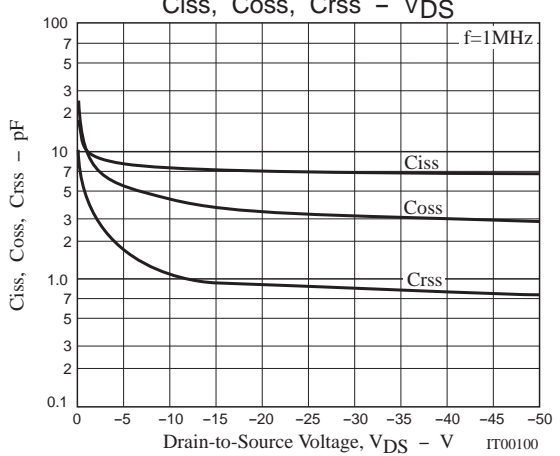
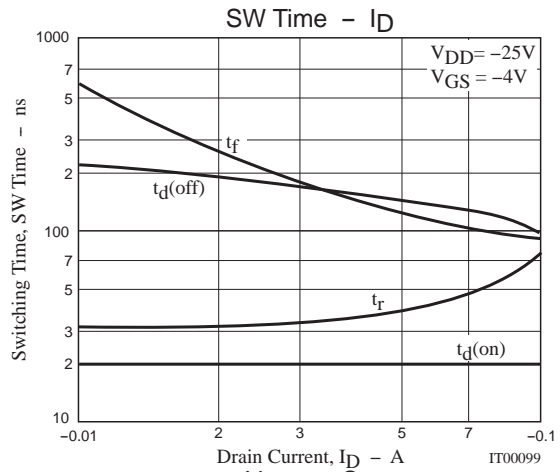
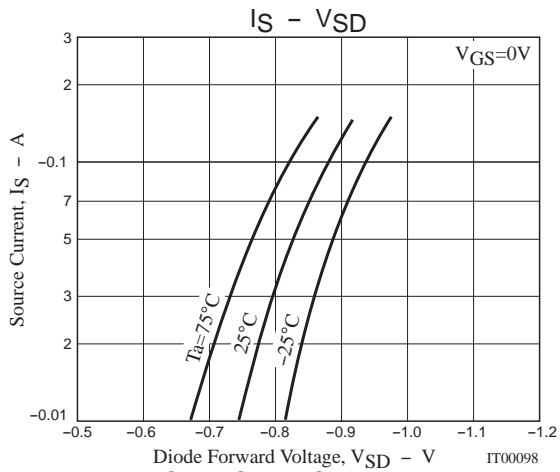
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
5LP01S-TL-E	SMCP	3,000pcs./reel	Pb Free



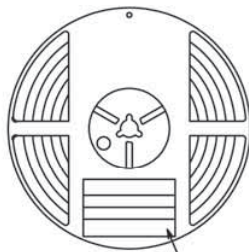


Embossed Taping Specification  
5LP01S-TL-E

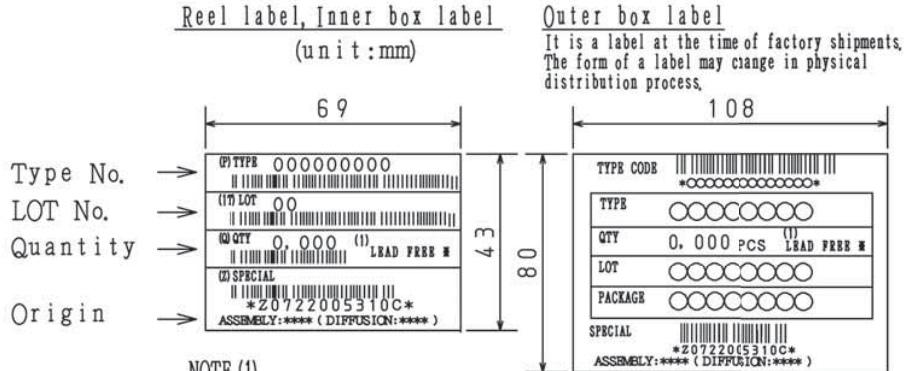
1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
SMCP	SMCP	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label



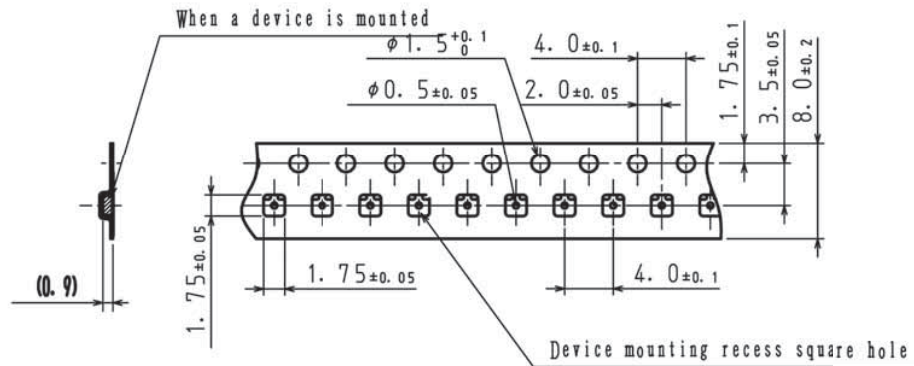
NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

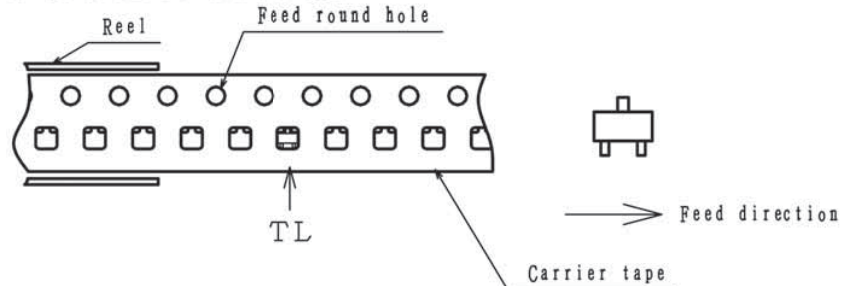
Label	JEITA Phase
.....	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

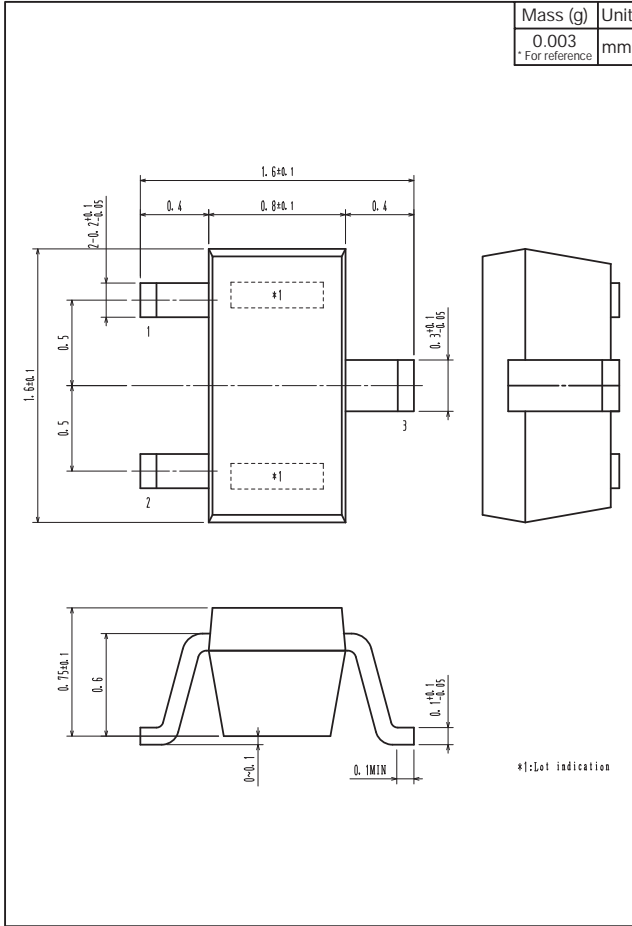


Those with one electrode terminal on the feed hole side.....TL

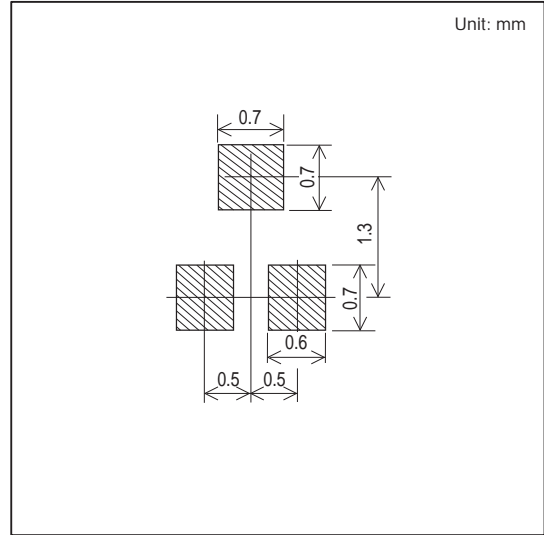
# 5LP01S

## Outline Drawing

5LP01S-TL-E



## Land Pattern Example



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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