Ordering number : EN6622B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

5LP01SS — General-Purpose Switching Device Applications

Features

- Low ON-resistance
- Ultrahigh-speed switching
- 2.5V drive
- Halogen free compliance

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

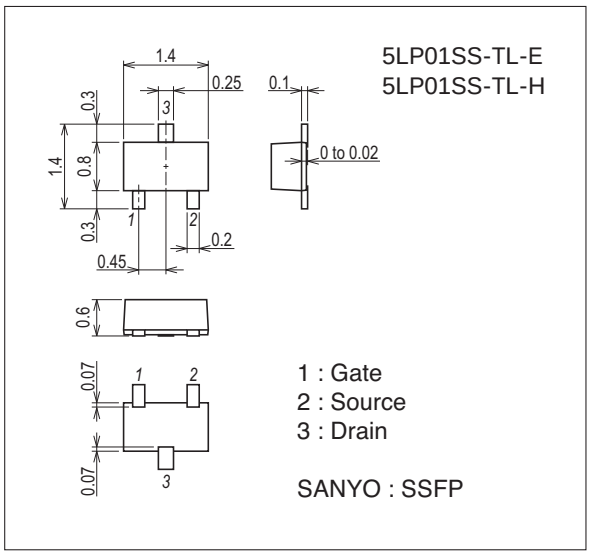
This product is designed to “ESD immunity < 200V*”, so please take care when handling.

* Machine Model

Package Dimensions

unit : mm (typ)

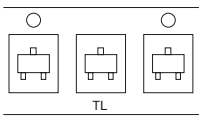
7029A-003



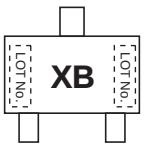
Product & Package Information

- Package : SSFP
- JEITA, JEDEC : SC-81
- Minimum Packing Quantity : 8,000 pcs./reel

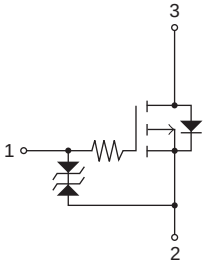
Packing Type: TL



Marking



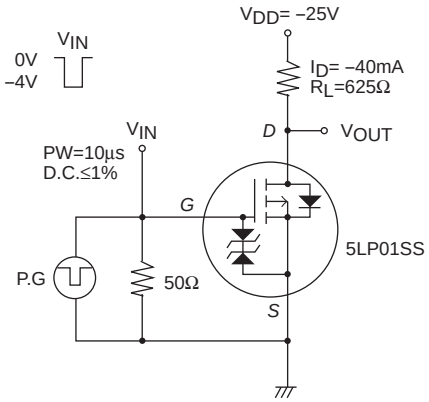
Electrical Connection



Electrical Characteristics at Ta=25°C

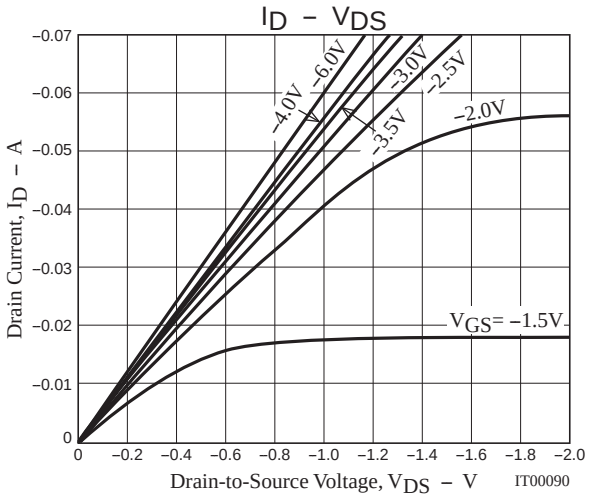
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D= −1mA, V_{GS}=0V	−50			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}= −50V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}= −10V, I_D= −100μA	−0.4		−1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}= −10V, I_D= −40mA	70	100		mS
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			4.2		pF
Reverse Transfer Capacitance	Crss			1.3		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		20		ns
Rise Time	t_r			35		ns
Turn-OFF Delay Time	t_{d}(off)			160		ns
Fall Time	t_f			150		ns
Total Gate Charge	Qg	V_{DS}= −10V, V_{GS}= −10V, I_D= −70mA		1.40		nC
Gate-to-Source Charge	Qgs			0.16		nC
Gate-to-Drain “Miller” Charge	Qgd			0.23		nC
Diode Forward Voltage	V_{SD}	I_S= −70mA, V_{GS}=0V		−0.85	−1.2	V

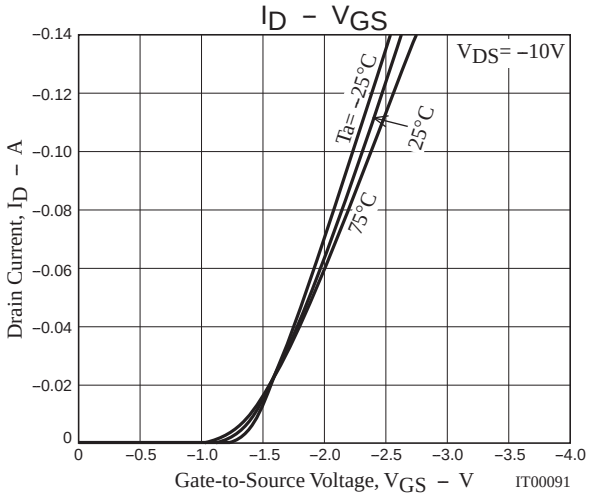
Switching Time Test Circuit

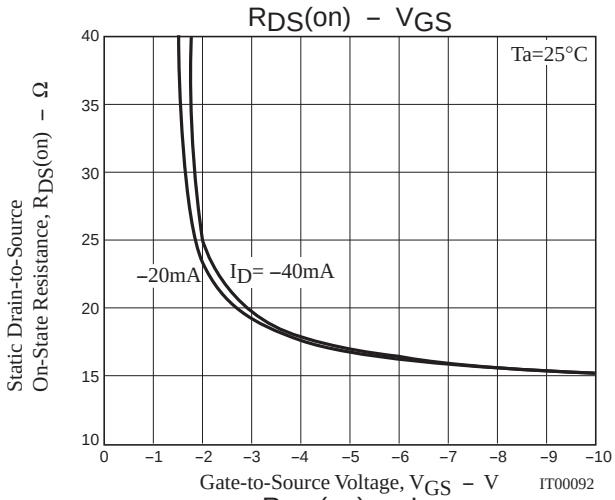


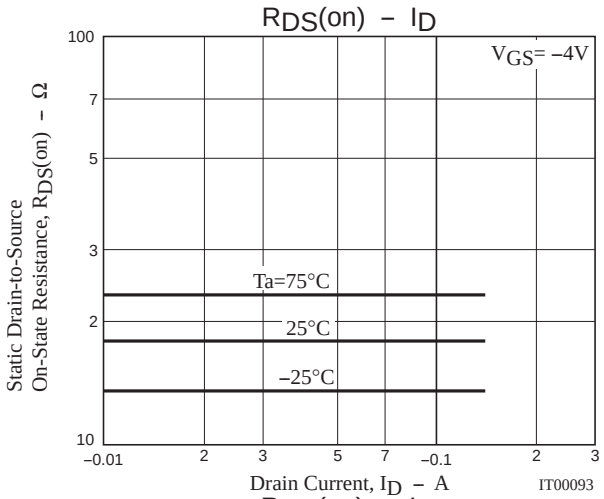
Ordering Information

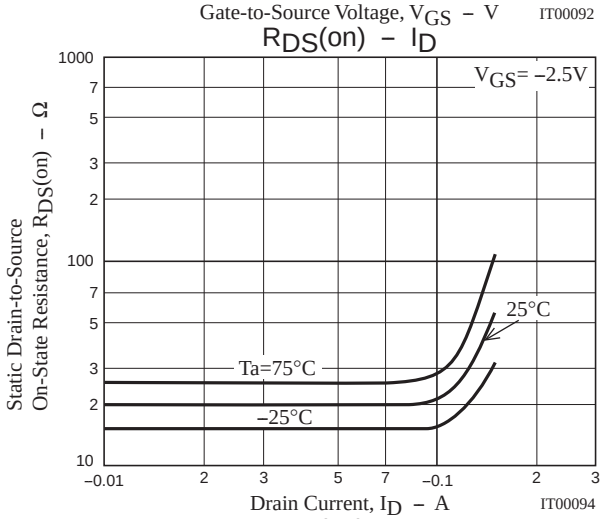
Device	Package	Shipping	memo
5LP01SS-TL-E	SSFP	8,000pcs./reel	Pb Free
5LP01SS-TL-H	SSFP	8,000pcs./reel	Pb Free and Halogen Free

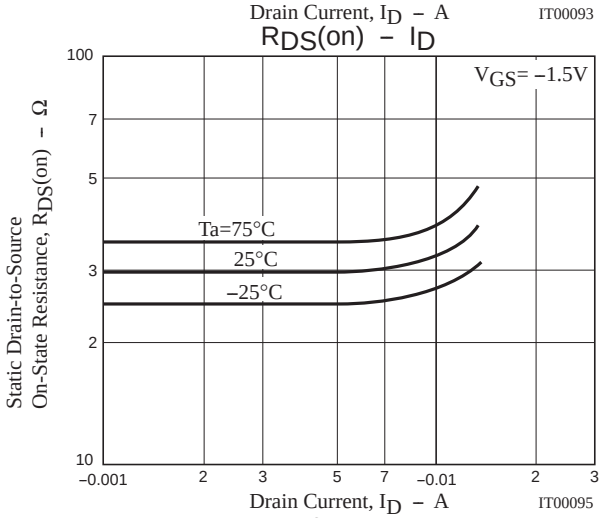


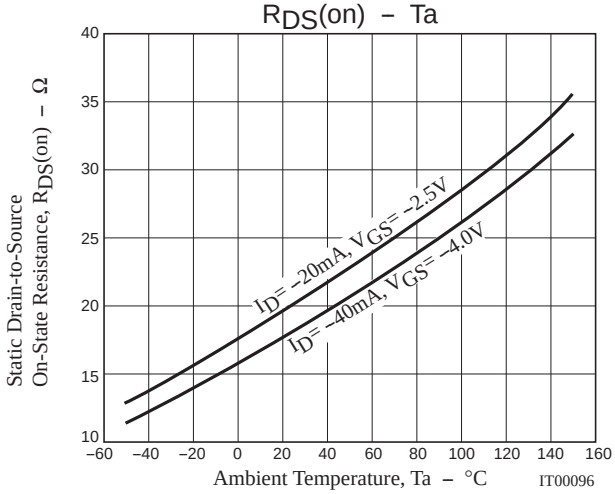


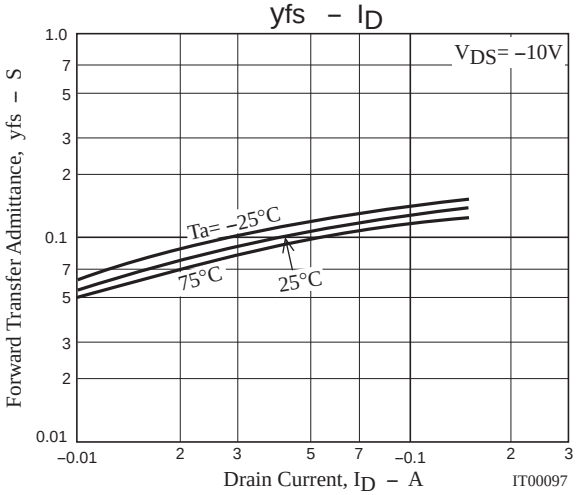

RDS(on) – VGS
Ta=25°C
–20mA
ID= –40mA
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT00092

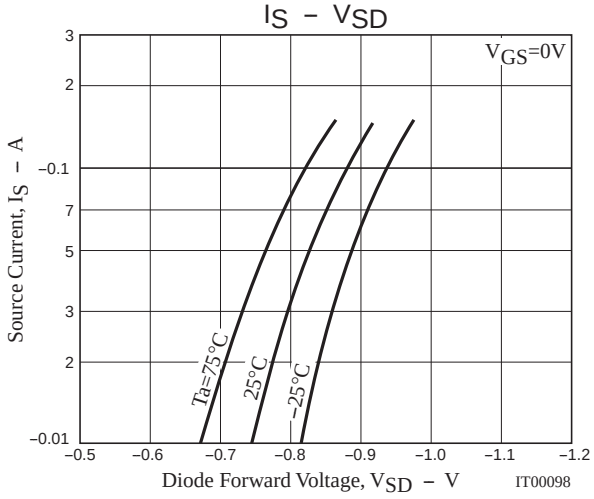

RDS(on) – ID
VGS= –4V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00093

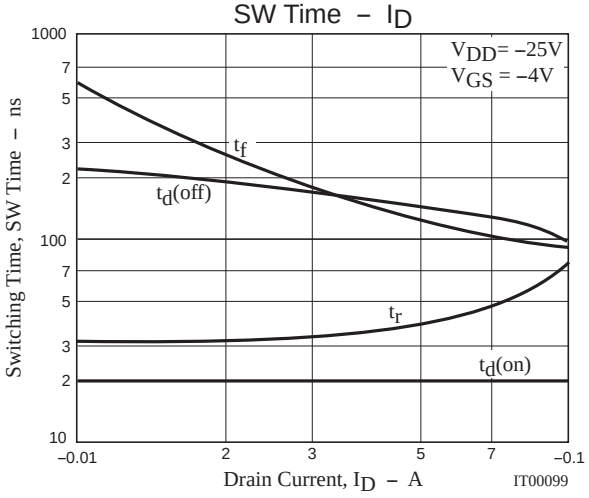

RDS(on) – ID
VGS= –2.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00094

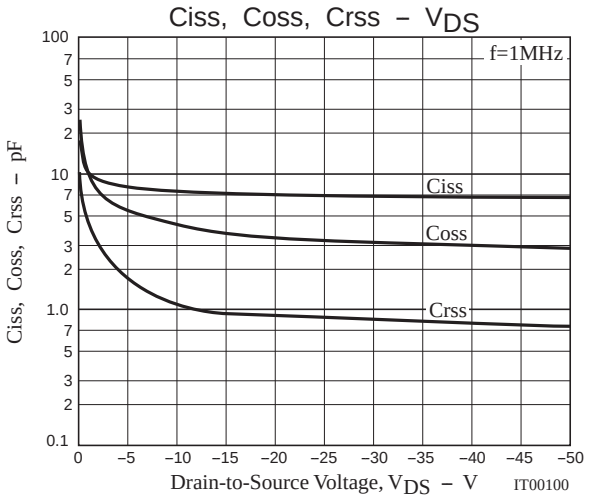

RDS(on) – ID
VGS= –1.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00095

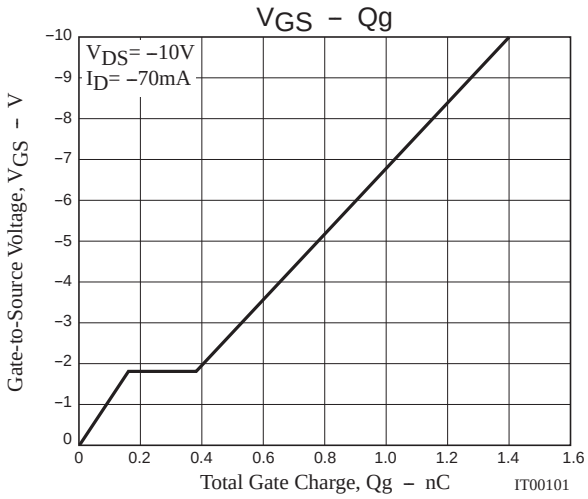

RDS(on) – Ta
ID= –20mA, VGS= –2.5V
ID= –40mA, VGS= –4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT00096

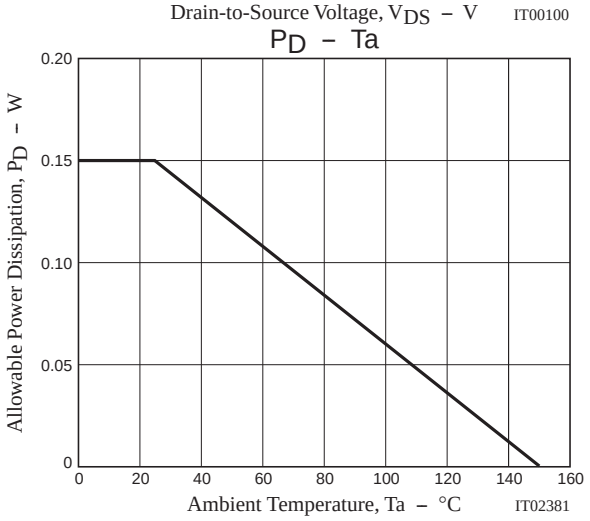

yfs – ID
VDS= –10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, yfs – S
Drain Current, ID – A
IT00097


IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT00098


SW Time – ID
VDD= –25V
VGS = –4V
tf
td(off)
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00099


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT00100


VGS – Qg
VDS= –10V
ID= –70mA
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT00101


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT02381

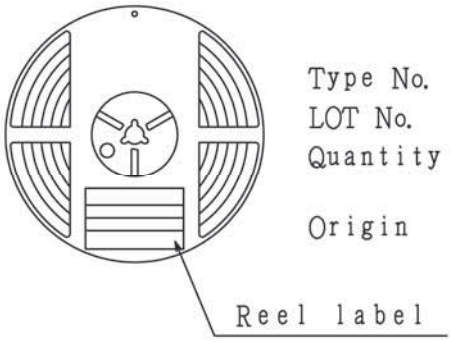
Embossed Taping Specification

5LP01SS-TL-E, 5LP01SS-TL-H

1. Packing Format

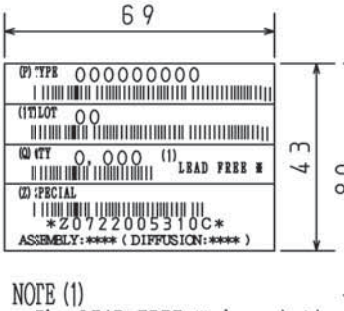
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
SSFP	SSFP	8,000	40,000	240,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



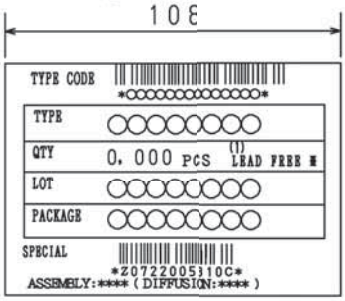
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



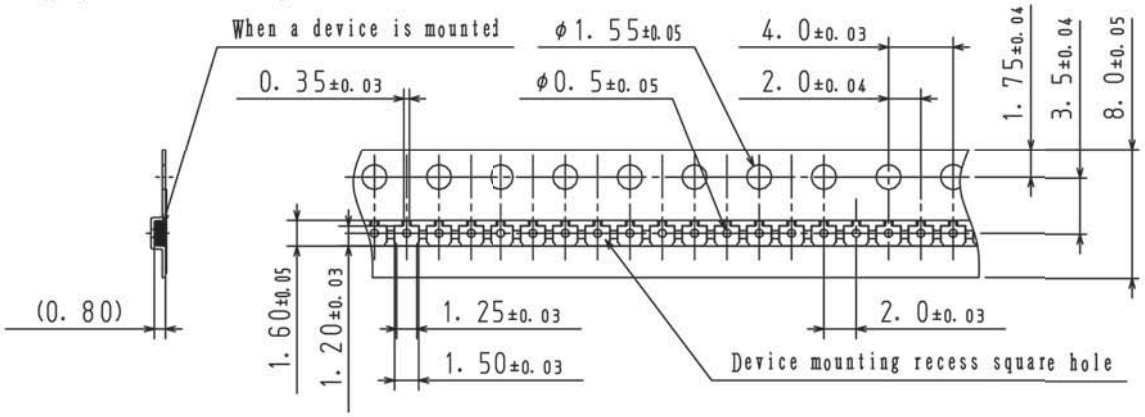
NOTE (1)

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

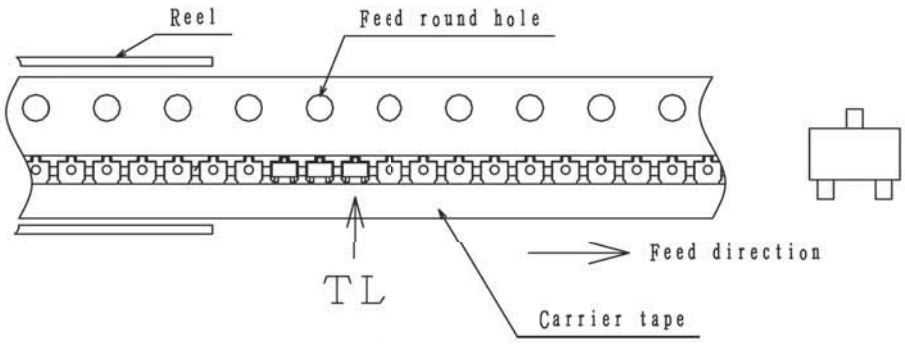
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



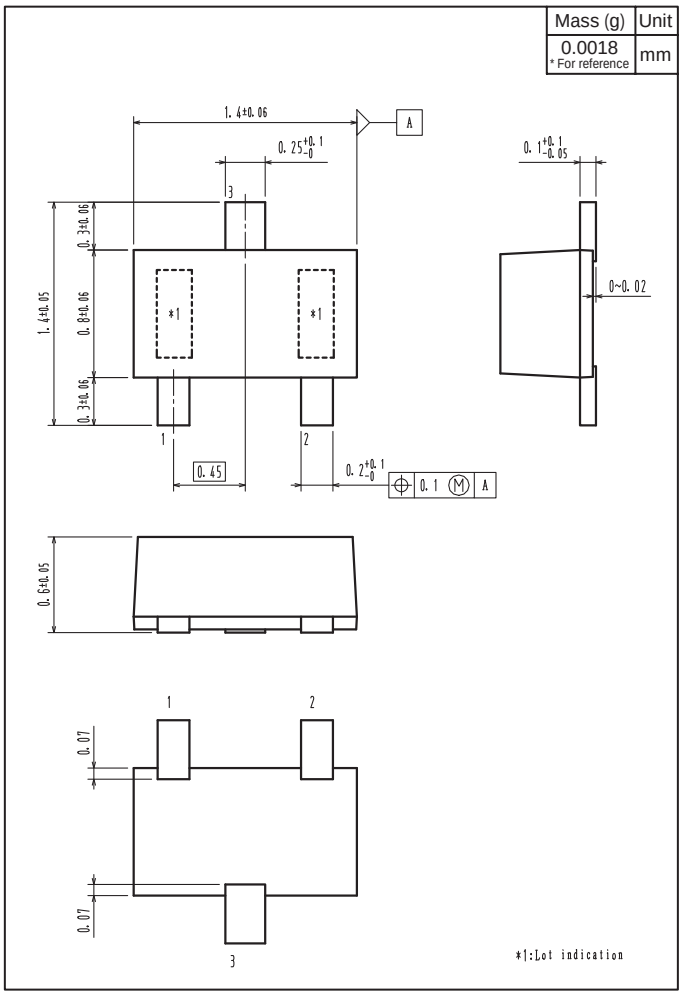
2-2. Device placement direction



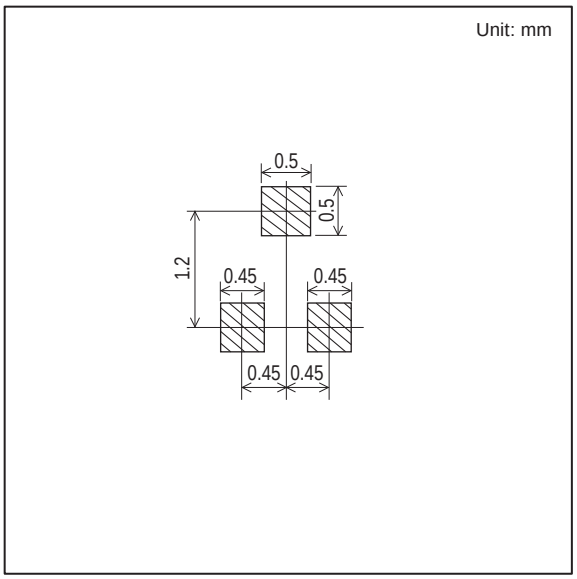
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

5LP01SS-TL-E, 5LP01SS-TL-H



Land Pattern Example



Note on usage : Since the 5LP01SS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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