



# 5HP01M — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- Ultrahigh-speed switching
- 4V drive

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-50	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-0.07	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-0.28	A
Allowable Power Dissipation	P <sub>D</sub>		0.15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

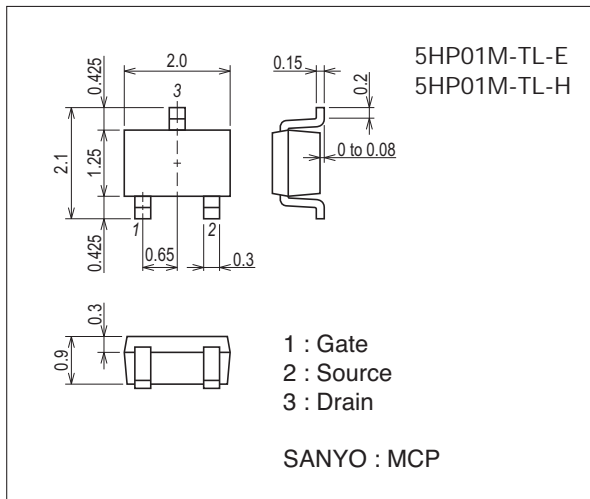
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

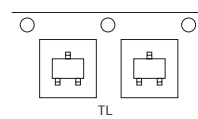
7023A-010



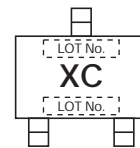
### Product & Package Information

- Package : MCP
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

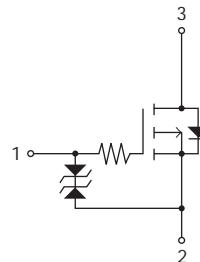
### Packing Type: TL



### Marking



### Electrical Connection

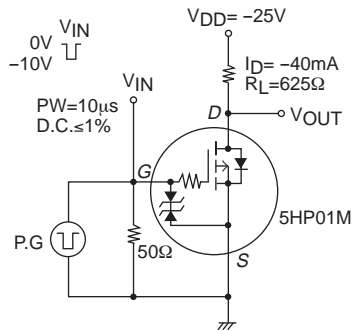


# 5HP01M

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> = -1mA, V <sub>GS</sub> = 0V	-50			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -50V, V <sub>GS</sub> = 0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±16V, V <sub>DS</sub> = 0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -100μA	-1		-2.5	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -40mA	50	70		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> = -40mA, V <sub>GS</sub> = -10V		17	22	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> = -20mA, V <sub>GS</sub> = -4V		23	32	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -10V, f = 1MHz		6.2		pF
Output Capacitance	C <sub>oss</sub>			4.0		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			1.3		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			13		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			100		ns
Fall Time	t <sub>f</sub>			150		ns
Total Gate Charge	Q <sub>g</sub>			1.32		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -70mA		0.17		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			0.34		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> = -70mA, V <sub>GS</sub> = 0V	-0.85	-1.2	

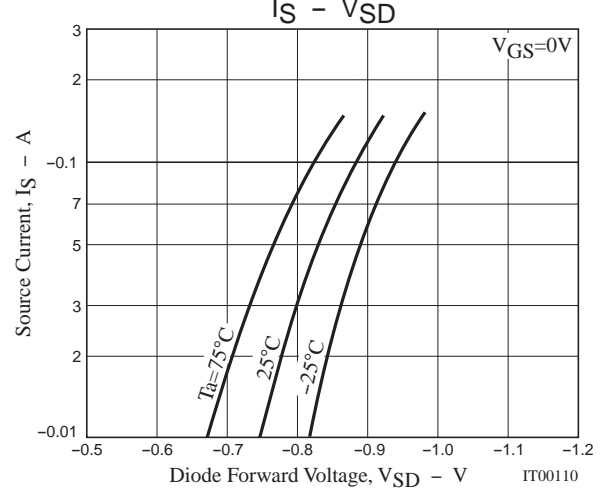
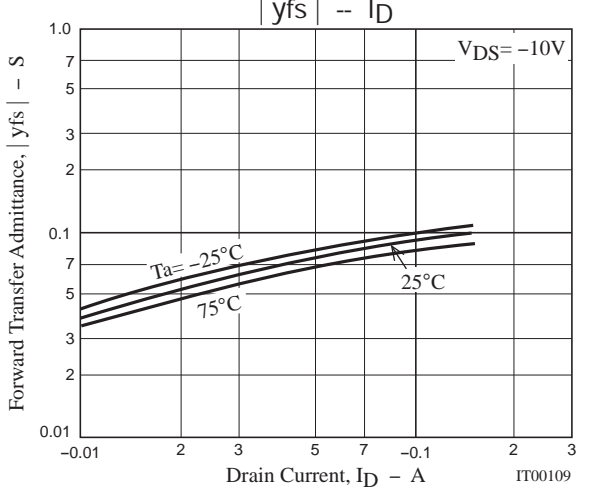
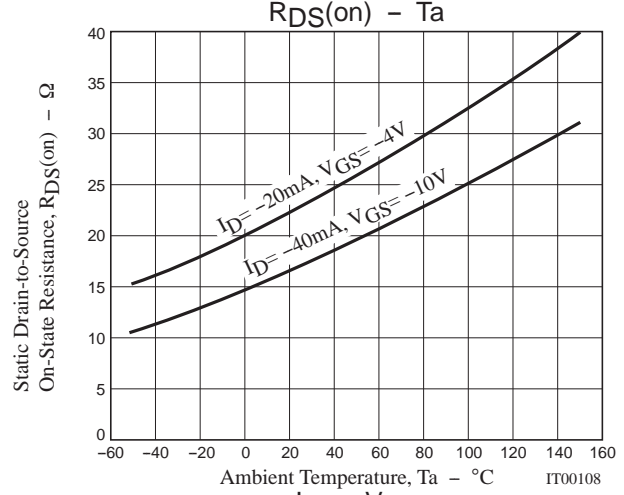
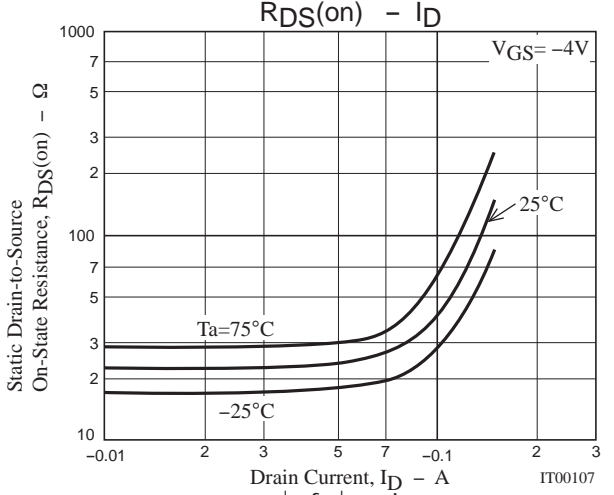
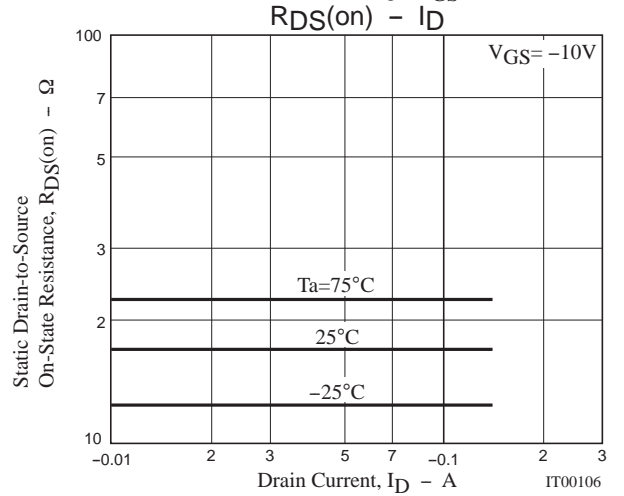
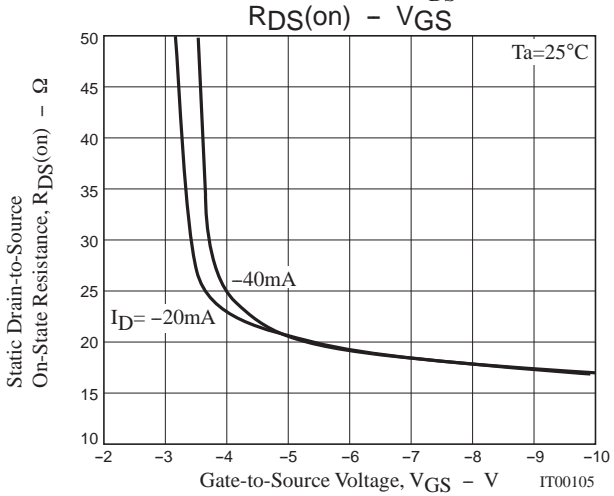
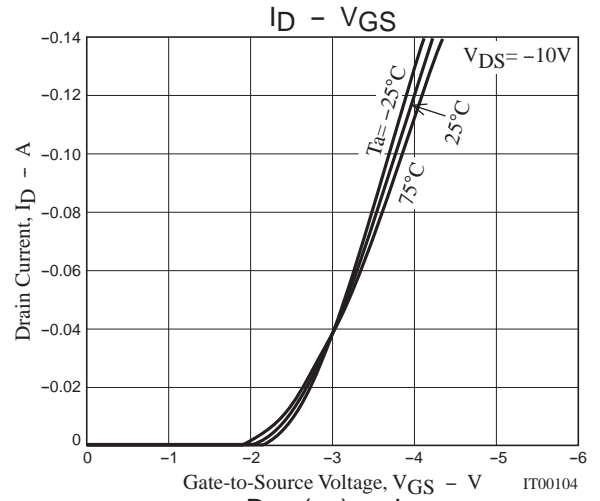
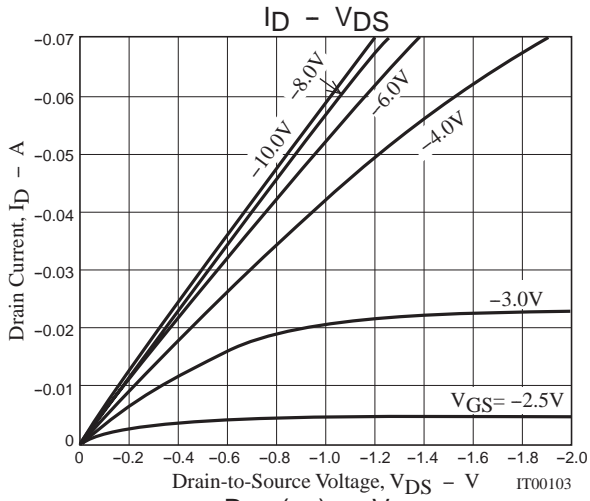
## Switching Time Test Circuit



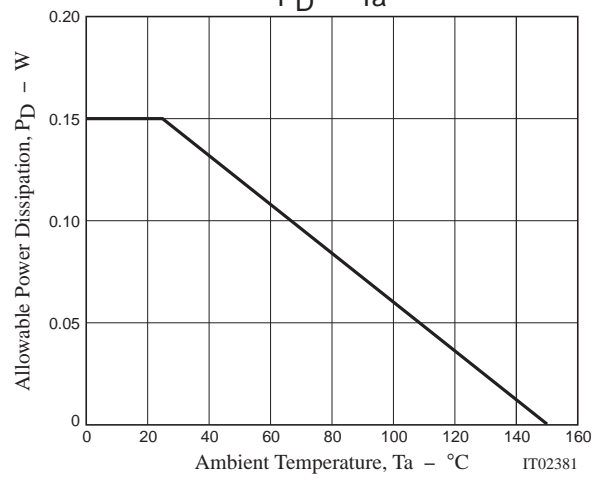
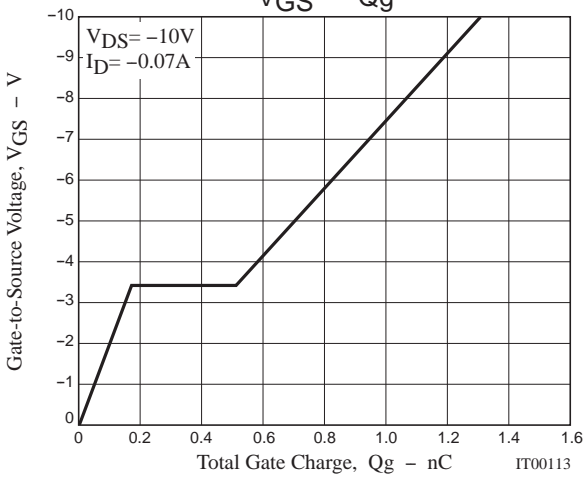
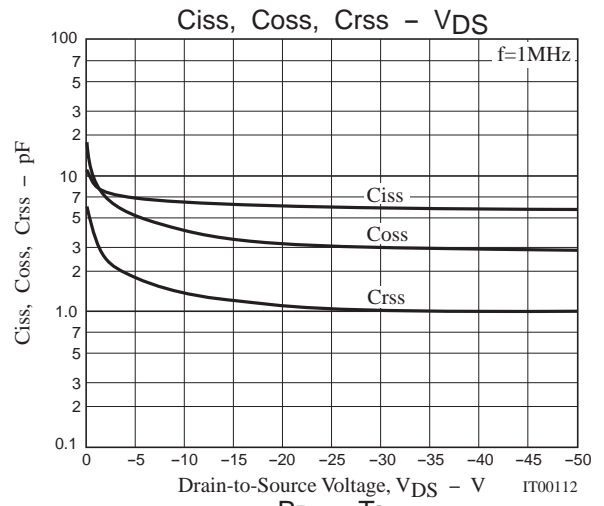
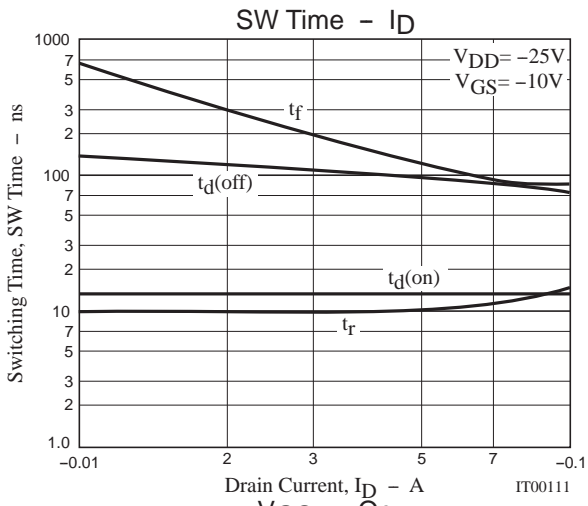
## Ordering Information

Device	Package	Shipping	memo
5HP01M-TL-E	MCP	3,000pcs./reel	Pb Free
5HP01M-TL-H	MCP	3,000pcs./reel	Pb Free and Halogen Free

# 5HP01M



# 5HP01M



# 5HP01M

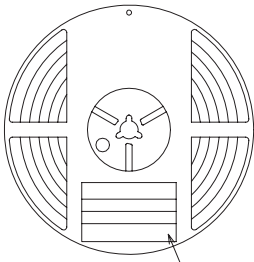
## Embossed Taping Specification

5HP01M-TL-E, 5HP01M-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)
MCP	MCP	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

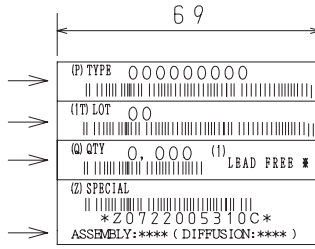
#### Packing method



Reel label

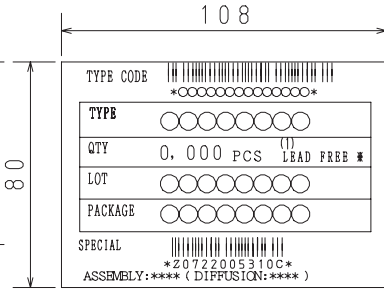
Type No.  
LOT No.  
Quantity  
Origin

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.



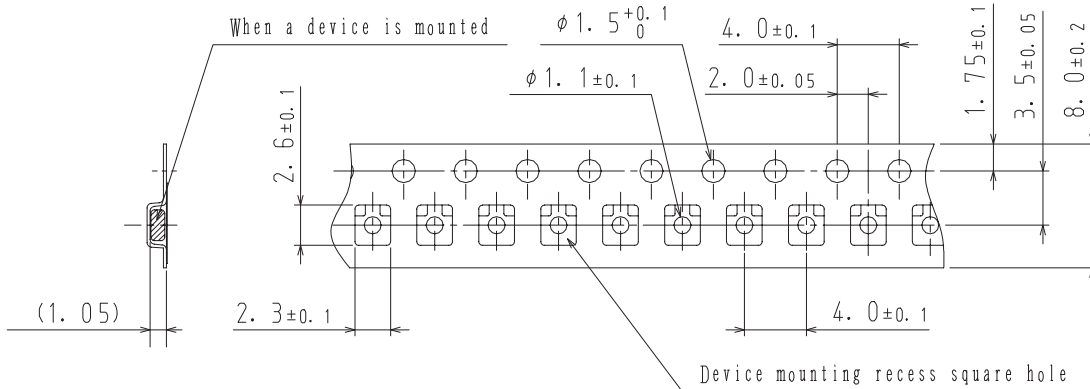
NOTE (1)

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

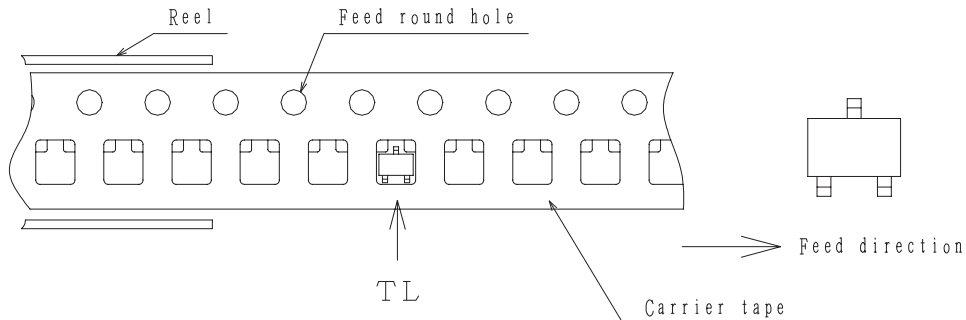
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

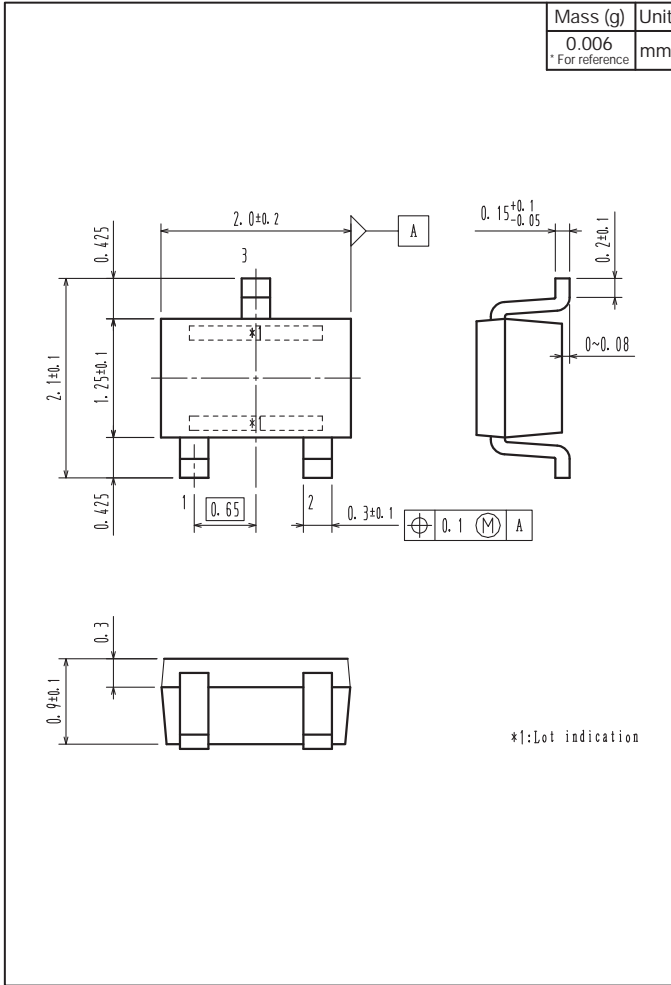


Those with one electrode terminal on the feed hole side.....TL

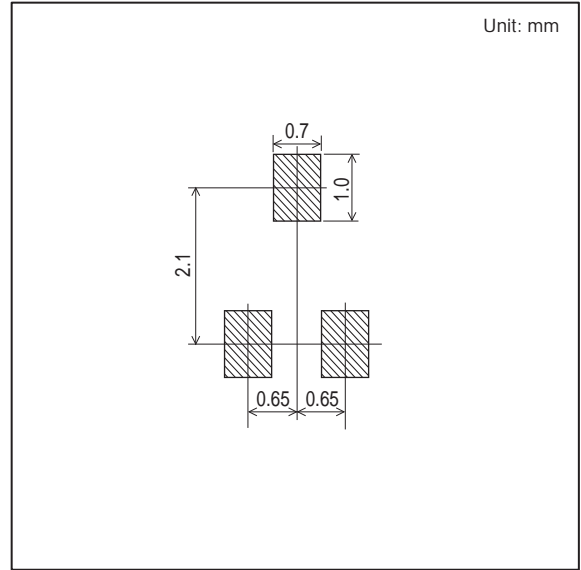
# 5HP01M

## Outline Drawing

5HP01M-TL-E, 5HP01M-TL-H



## Land Pattern Example



Note on usage : Since the 5HP01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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