



# 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

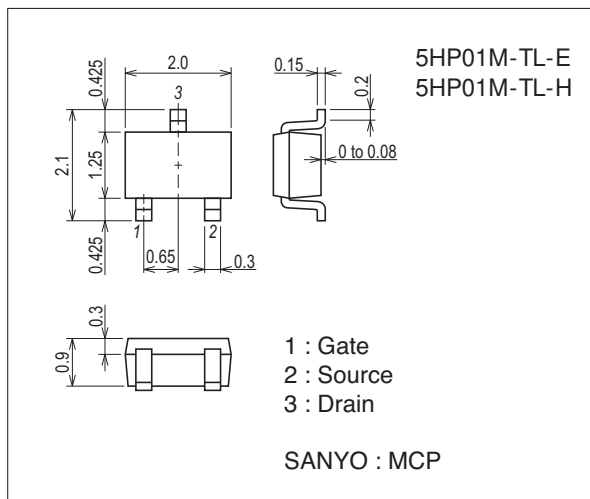
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

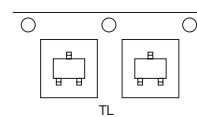
7023A-010



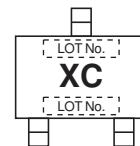
### Product & Package Information

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

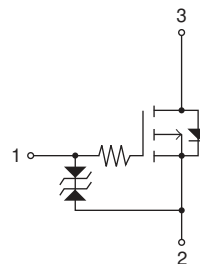
### Packing Type: TL



### Marking



### Electrical Connection

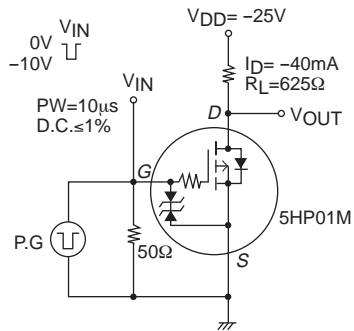


# 5HP01M

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$	-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	$I_{GSS}$	$V_{GS} = \pm 16\text{V}, V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}, I_D = -100\mu\text{A}$	-1		-2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}, I_D = -40\text{mA}$	50	70		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -40\text{mA}, V_{GS} = -10\text{V}$		17	22	$\Omega$
	$R_{DS(on)2}$	$I_D = -20\text{mA}, V_{GS} = -4\text{V}$		23	32	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10\text{V}, f = 1\text{MHz}$		6.2		pF
Output Capacitance	$C_{oss}$			4.0		pF
Reverse Transfer Capacitance	$C_{rss}$			1.3		pF
Turn-ON Delay Time	$t_{d(on)}$			13		ns
Rise Time	$t_r$	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	$t_{d(off)}$			100		ns
Fall Time	$t_f$			150		ns
Total Gate Charge	$Q_g$			1.32		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -10\text{V}, V_{GS} = -10\text{V}, I_D = -70\text{mA}$		0.17		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.34		nC
Diode Forward Voltage	$V_{SD}$		$I_S = -70\text{mA}, V_{GS} = 0\text{V}$	-0.85		-1.2

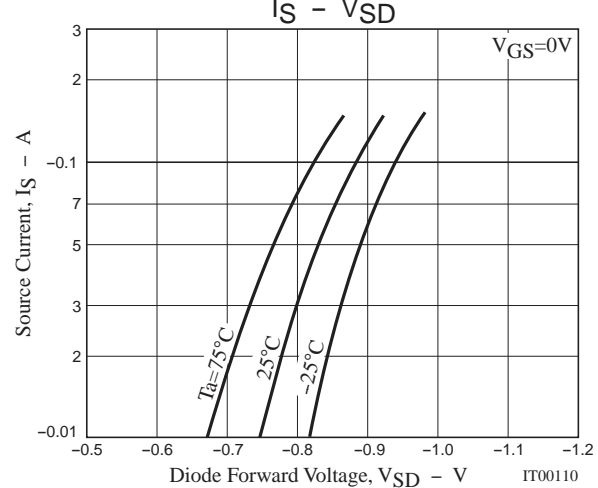
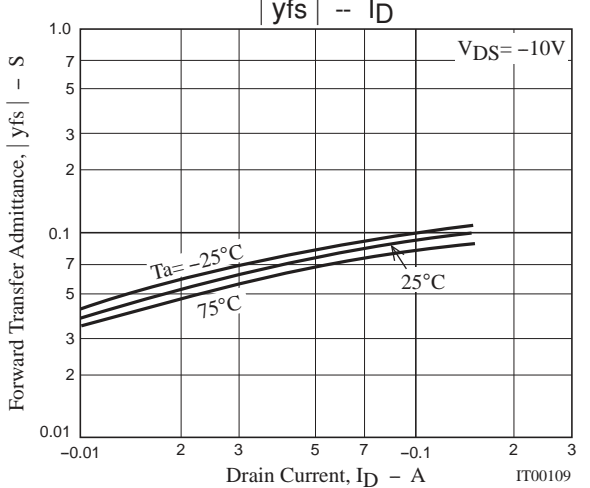
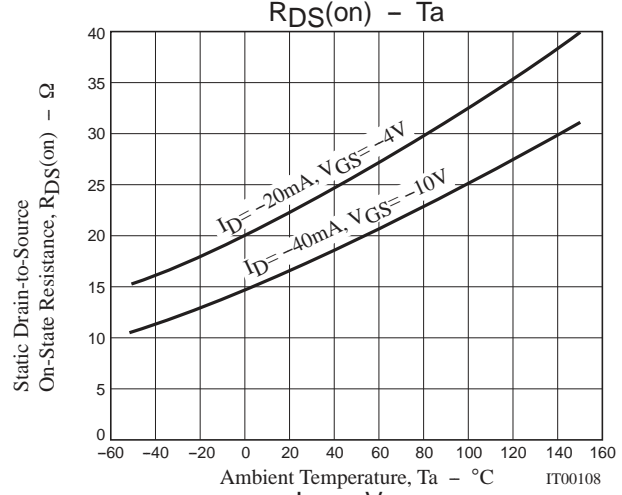
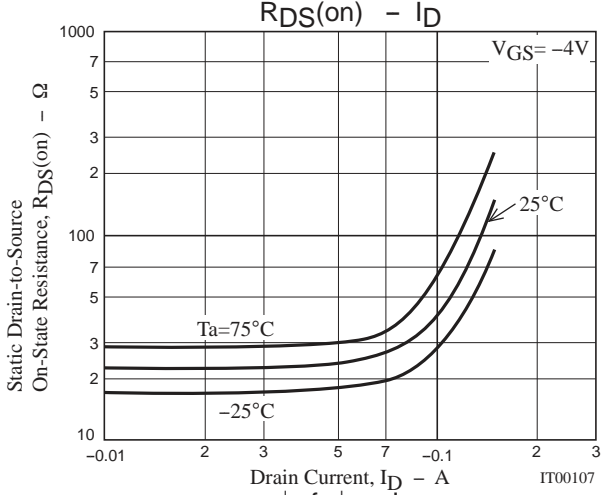
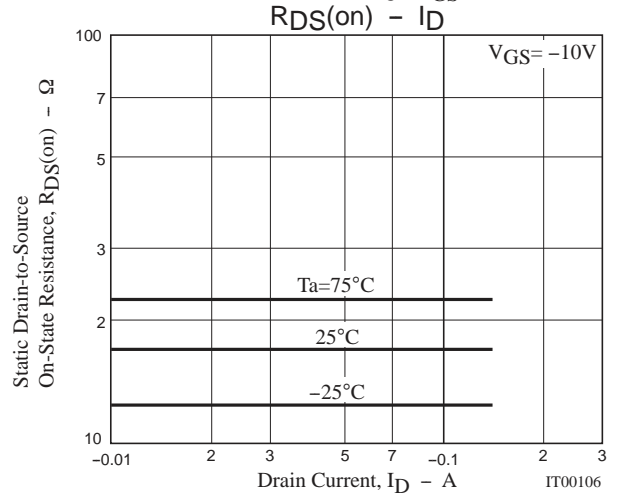
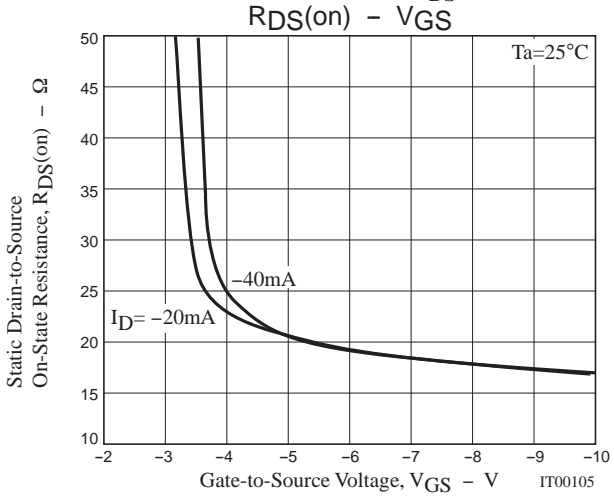
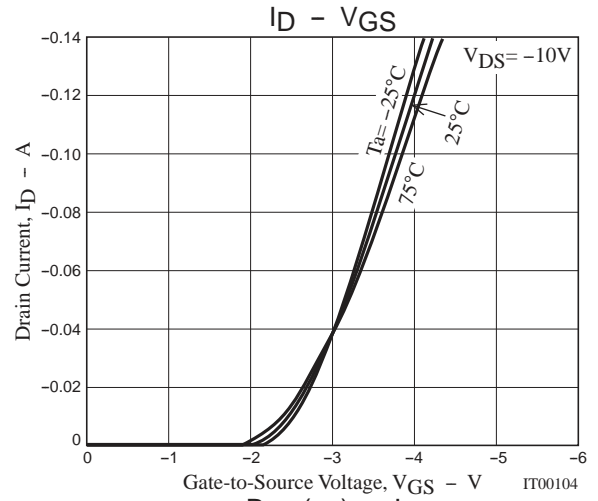
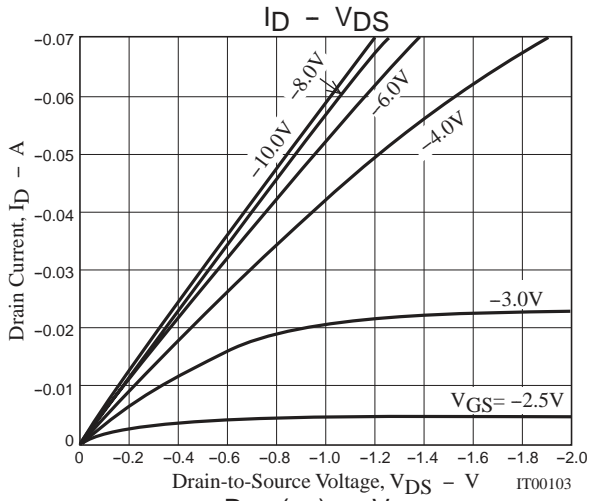
## Switching Time Test Circuit



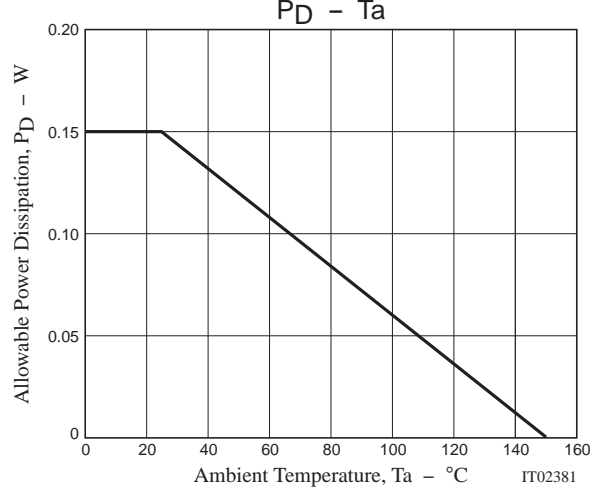
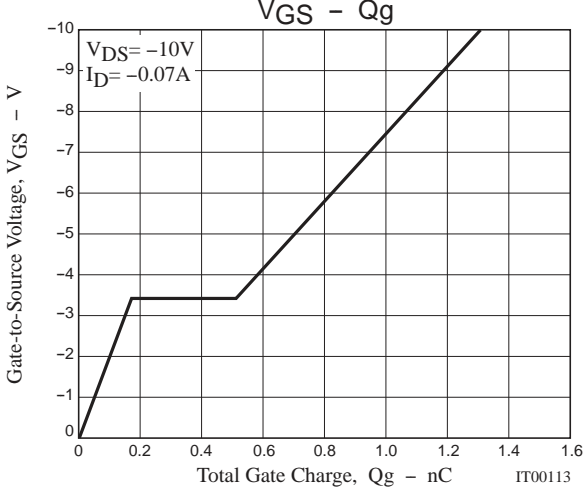
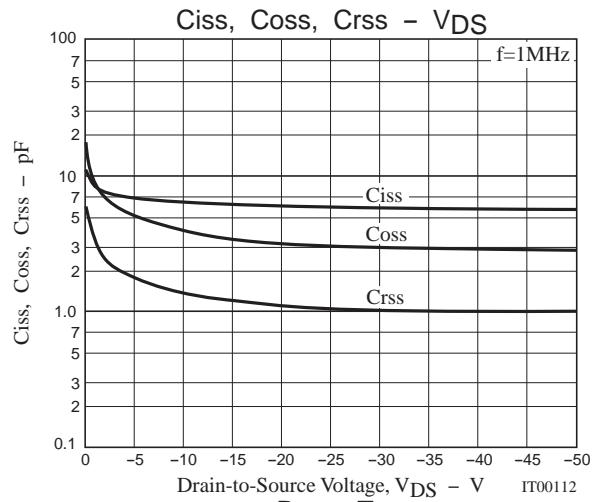
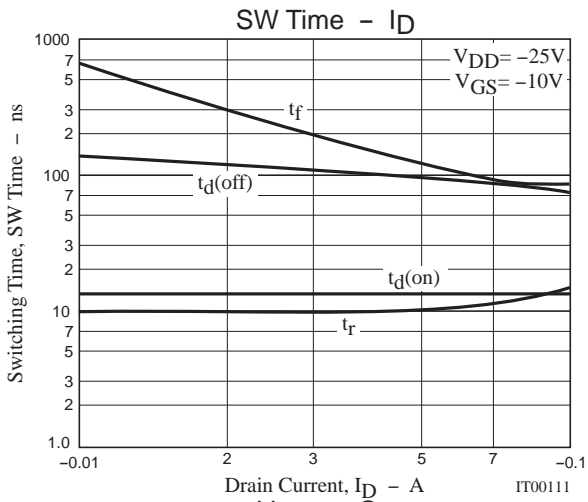
## Ordering Information

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

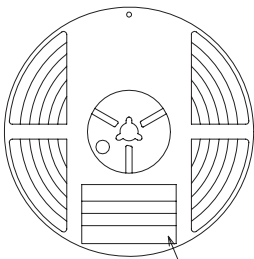
## Embossed Taping Specification

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

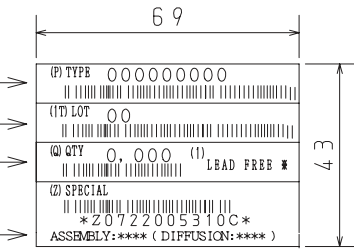
#### Packing method



Reel label

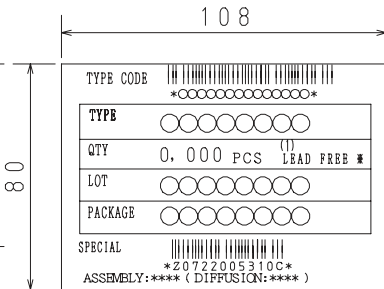
Type No.  
LOT No.  
Quantity  
Origin

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.



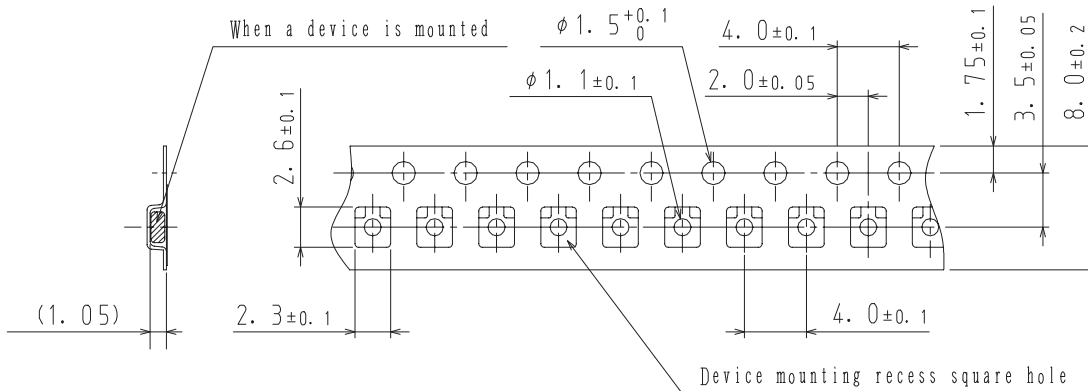
#### NOTE (1)

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

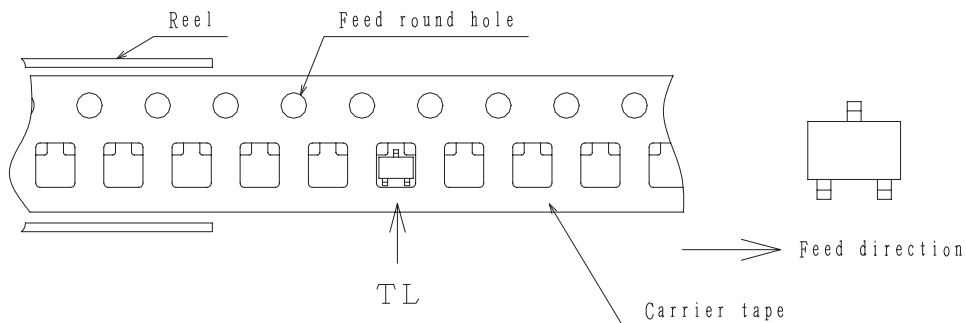
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 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



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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