



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH6604 — N-Channel Silicon MOSFET — General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- Ultrahigh-speed switching
- 1.5V drive
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting

### 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>		±10	V
Drain Current (DC)	I <sub>D</sub>		0.25	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycles≤1%	1	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)1unit	0.8	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

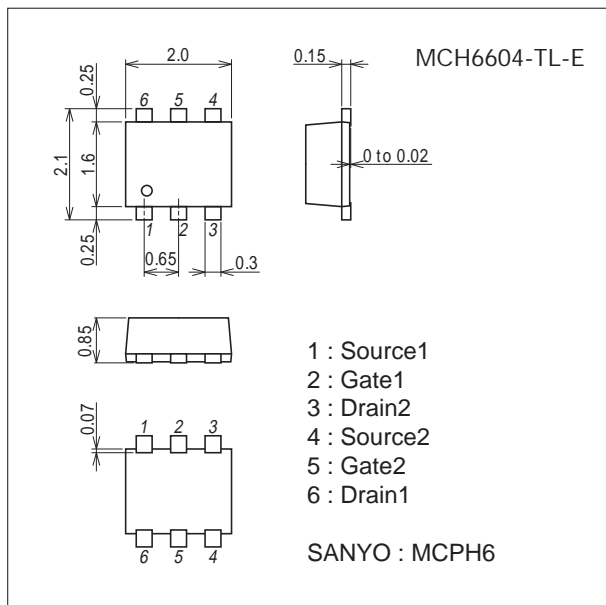
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

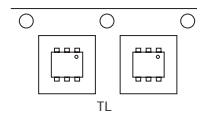
7022A-006



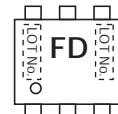
### Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

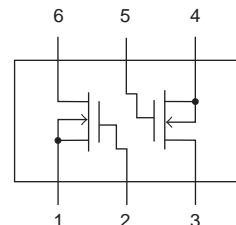
### Packing Type : TL



### Marking



### Electrical Connection

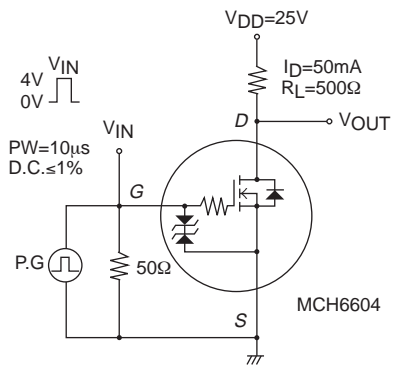


# MCH6604

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

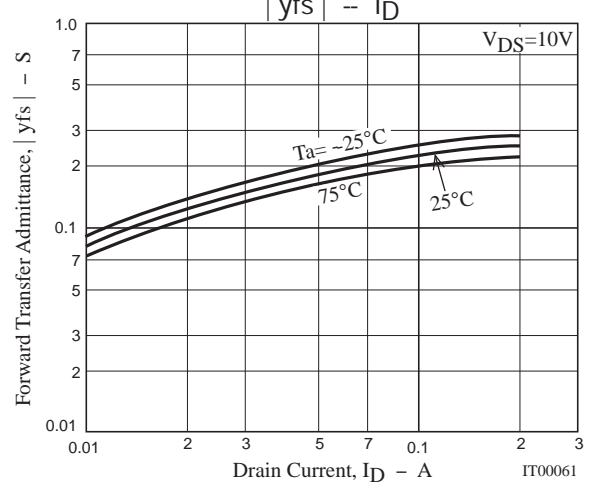
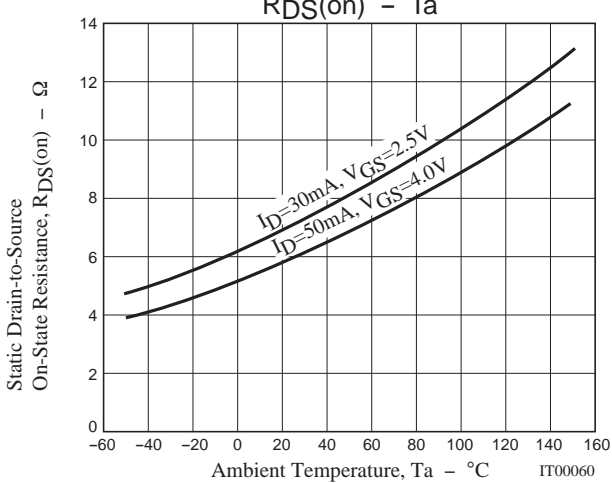
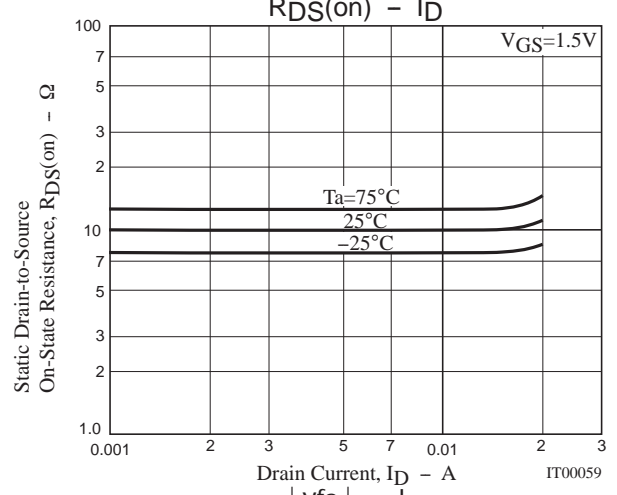
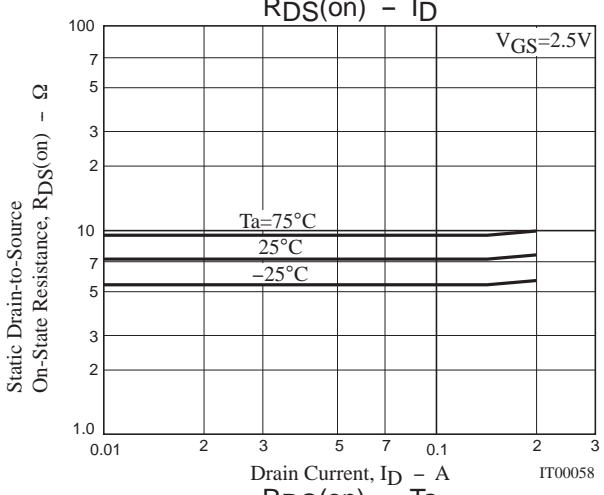
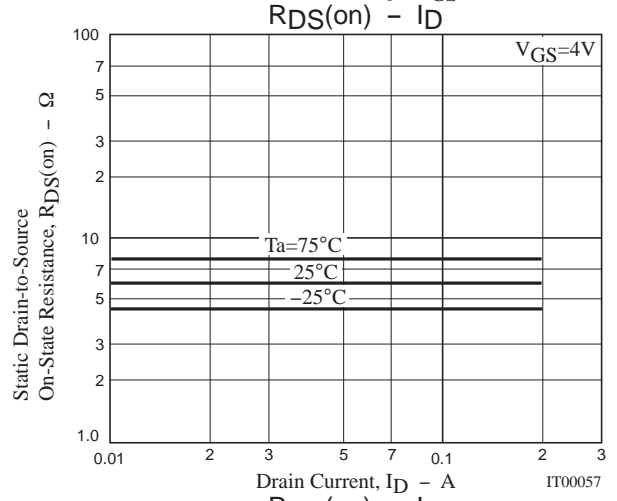
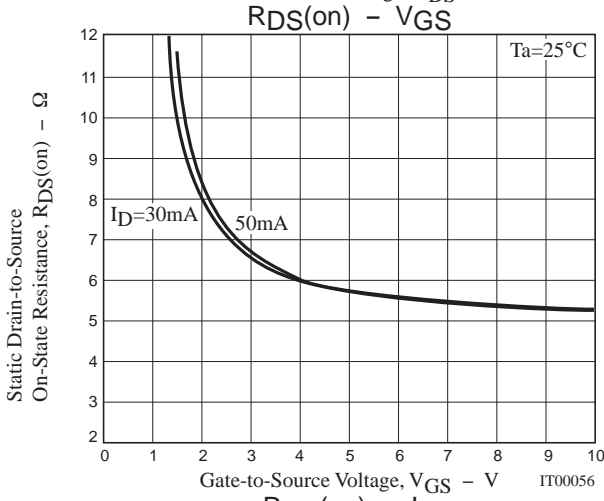
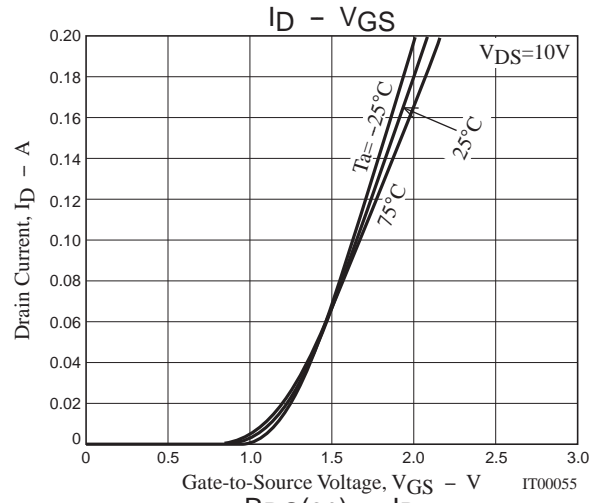
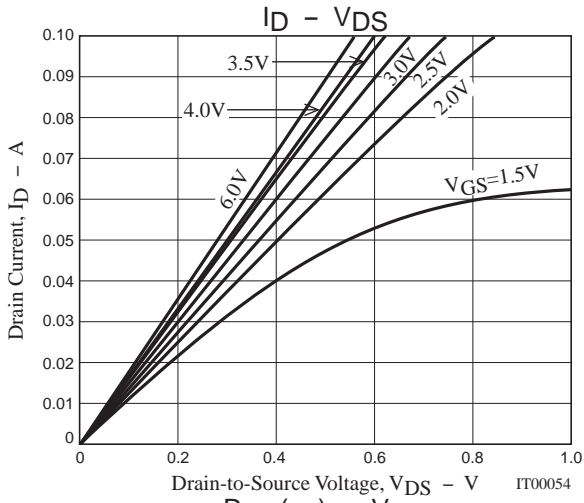
Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	50			V	
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$	
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=100\mu\text{A}$	0.4		1.3	V	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=50\text{mA}$	130	180		mS	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50\text{mA}, V_{GS}=4\text{V}$		6	7.8	$\Omega$	
	$R_{DS(on)2}$	$I_D=30\text{mA}, V_{GS}=2.5\text{V}$		7.1	9.9	$\Omega$	
	$R_{DS(on)3}$	$I_D=10\text{mA}, V_{GS}=1.5\text{V}$		10	20	$\Omega$	
Input Capacitance	$C_{iss}$	See specified Test Circuit.		6.6		pF	
Output Capacitance	$C_{oss}$		$V_{DS}=10\text{V}, f=1\text{MHz}$		4.7		pF
Reverse Transfer Capacitance	$C_{rss}$				1.7		pF
Turn-ON Delay Time	$t_{d(on)}$				18		ns
Rise Time	$t_r$			42		ns	
Turn-OFF Delay Time	$t_{d(off)}$			190		ns	
Fall Time	$t_f$			105		ns	
Total Gate Charge	$Q_g$	$V_{DS}=10\text{V}, V_{GS}=10\text{V}, I_D=100\text{mA}$		1.57		nC	
Gate-to-Source Charge	$Q_{gs}$			0.20		nC	
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.32		nC	
Diode Forward Voltage	$V_{SD}$		$I_S=100\text{mA}, V_{GS}=0\text{V}$		0.85	1.2	V

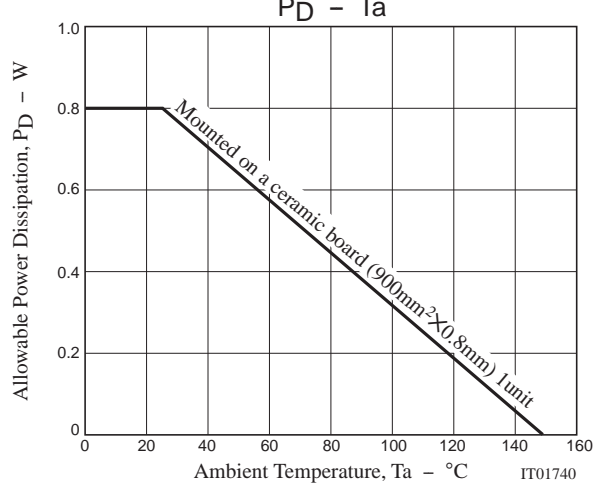
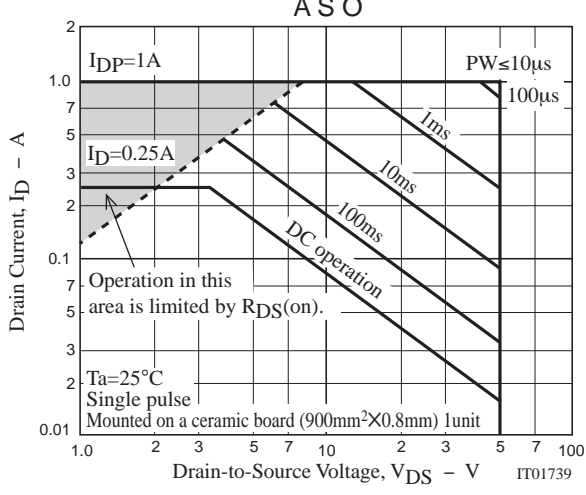
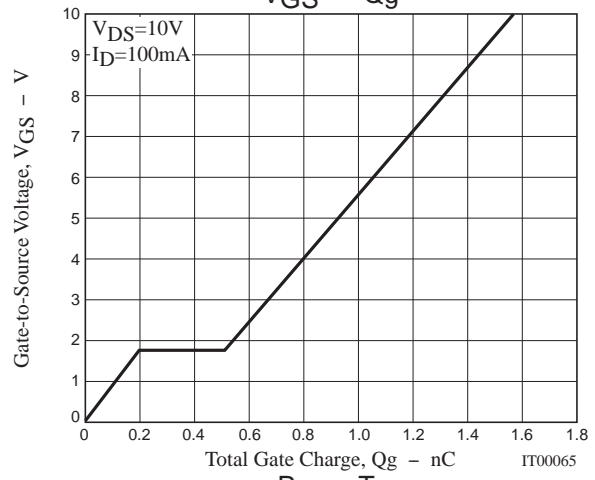
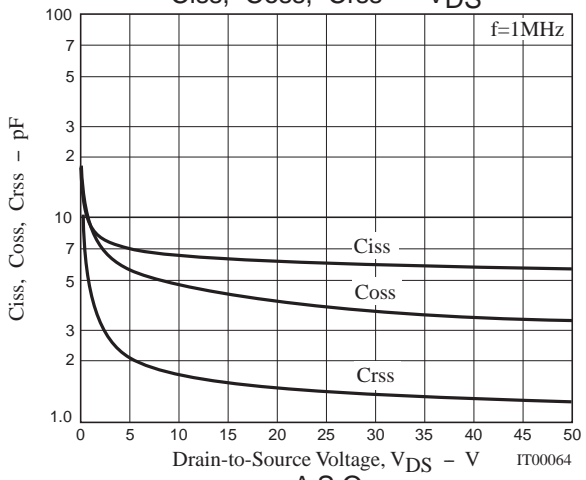
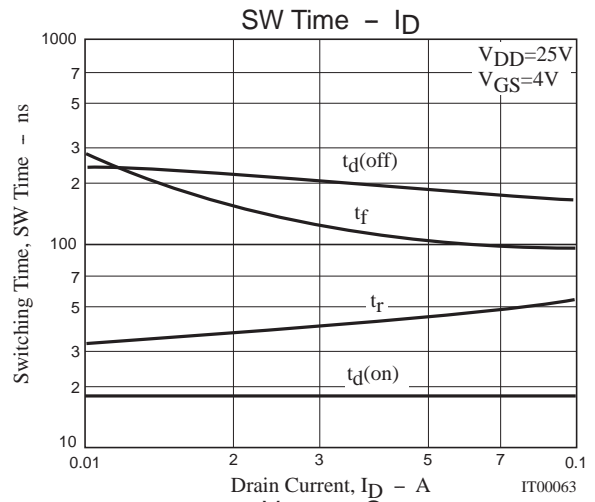
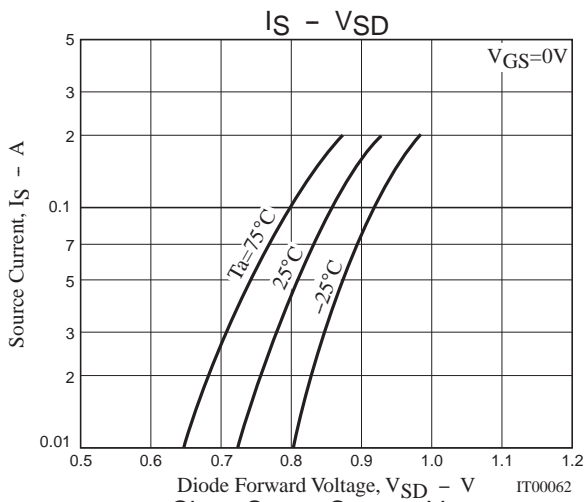
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH6604-TL-E	MCPH6	3,000pcs./reel	Pb Free





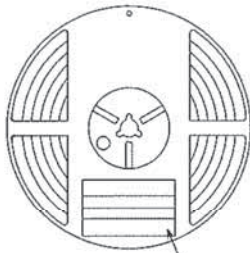
Taping Specification

MCH6604-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)
MCPH6	MCP4	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

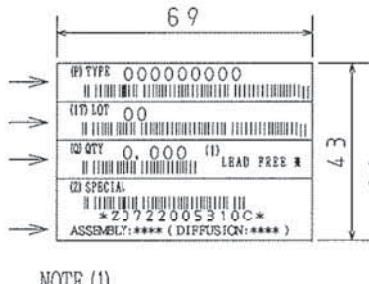
Packing method



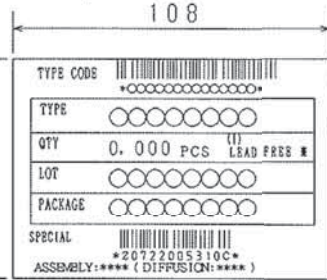
Type No.  
LOT No.  
Quantity  
Origin

Reel label

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.)



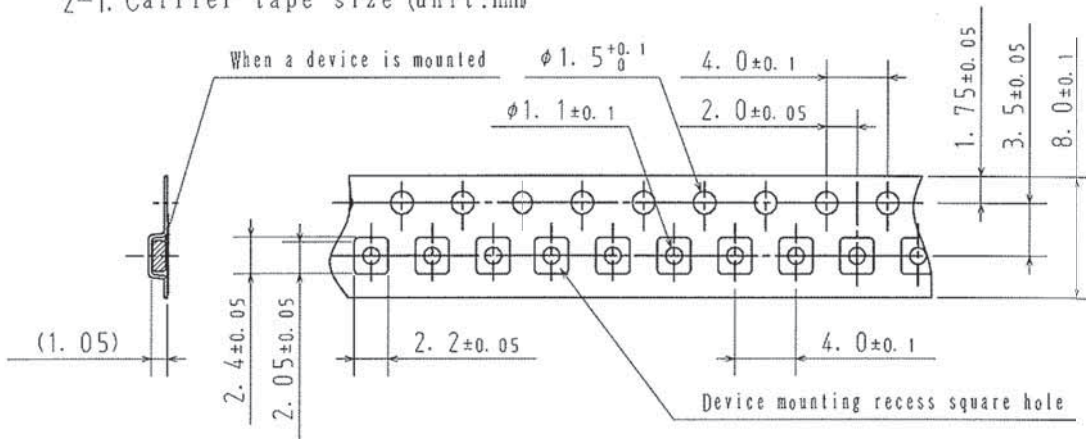
NOTE (1)

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

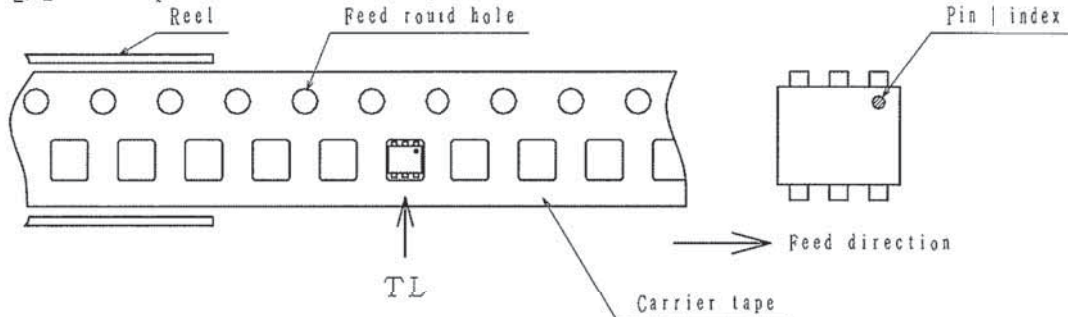
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



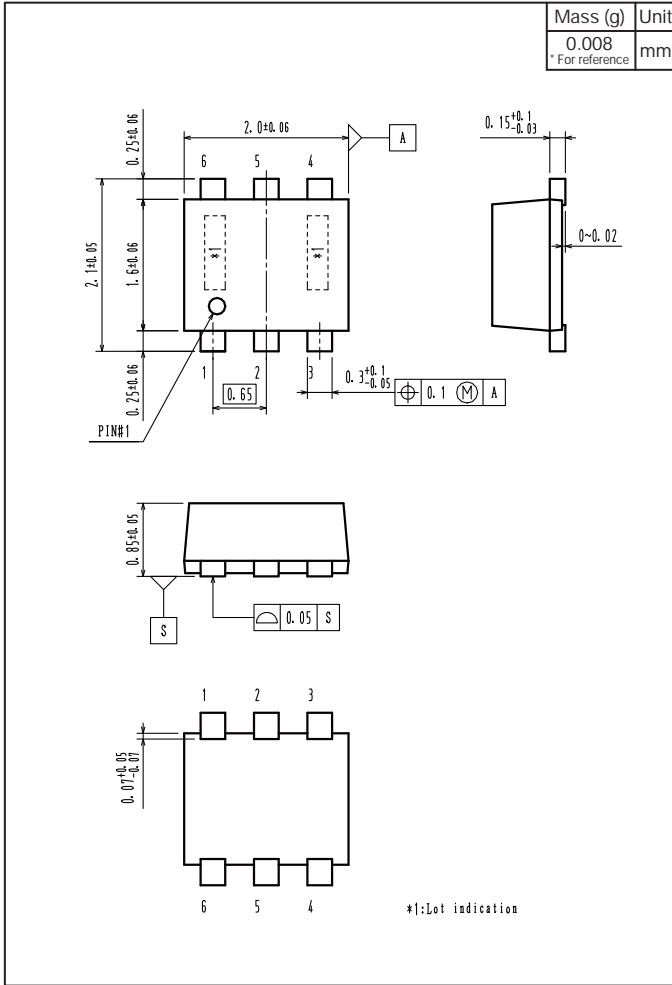
2-2. Device placement direction



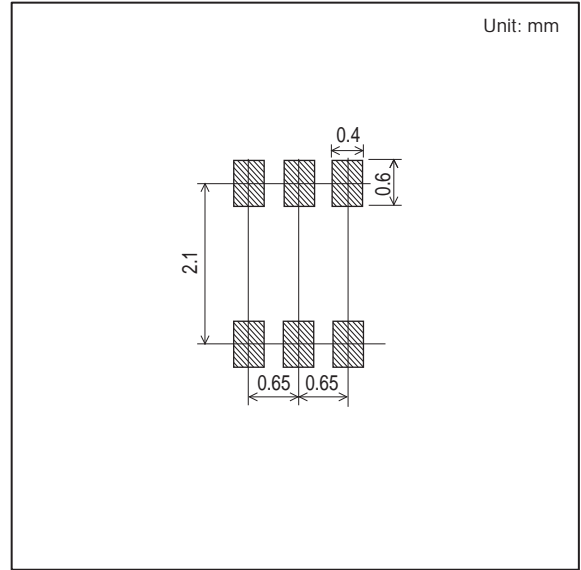
Those with pin | index on the feed hole side.....TL

# MCH6604

## Outline Drawing MCH6604-TL-E



## Land Pattern Example



Note on usage : Since the MCH6604 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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