



# MCH3375

## P-Channel Power MOSFET -30V, -1.6A, 295mΩ, Single MCPH3

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance  $R_{DS(on)1}=227m\Omega$ (typ.)
- 4V drive
- Halogen free compliance

### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	$V_{DSS}$		-30	V
Gate to Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-1.6	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-6.4	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	0.8	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

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

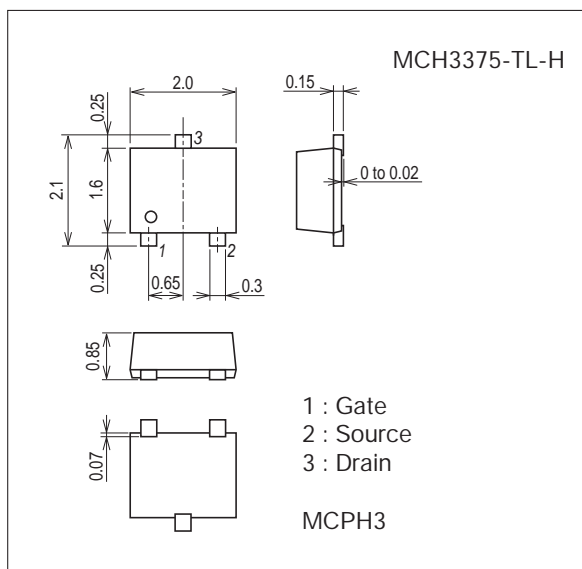
\* Machine Model

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

unit : mm (typ)

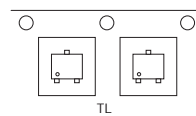
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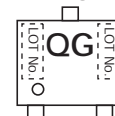
### Ordering & Package Information

Device	Package	Shipping	note
MCH3375-TL-H	MCPH3 SC-70, SOT-323	3,000 pcs./reel	Pb-Free and Halogen Free

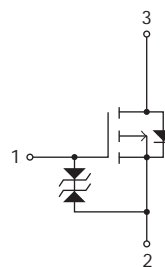
### Packing Type: TL



### Marking



### Electrical Connection

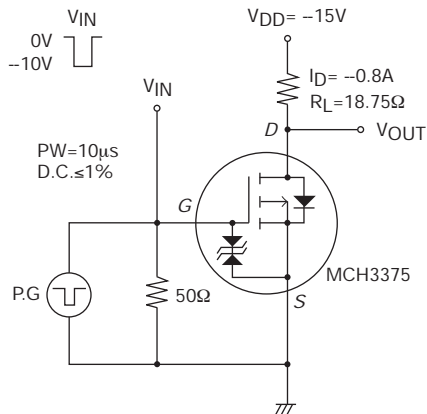


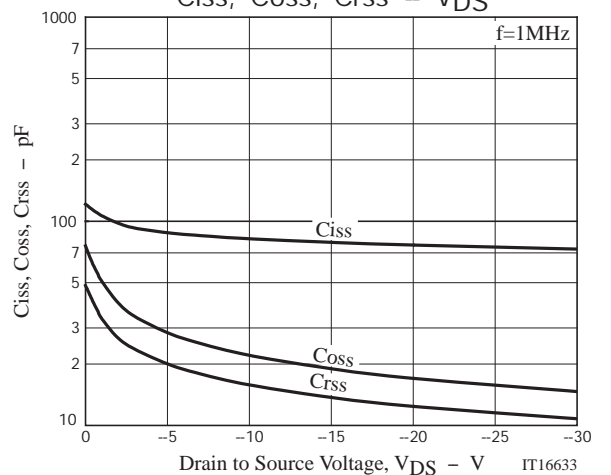
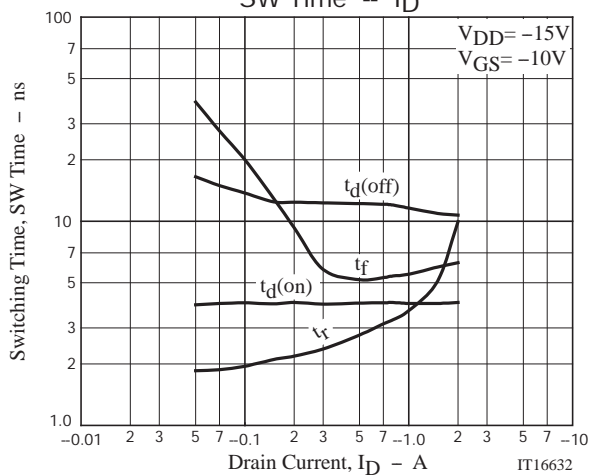
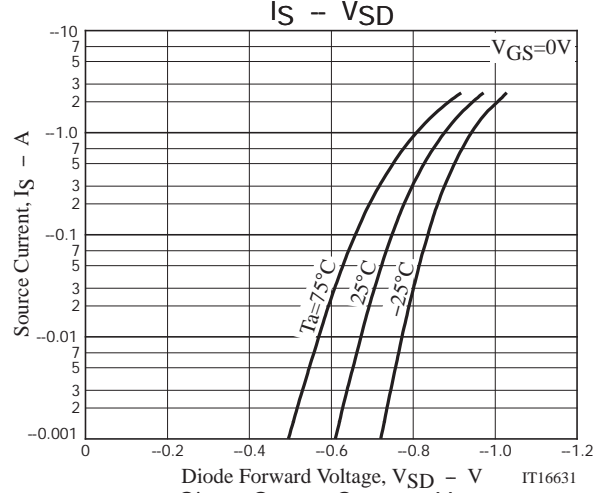
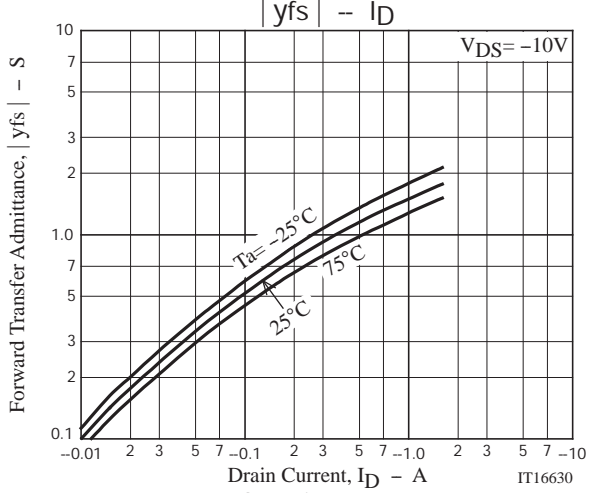
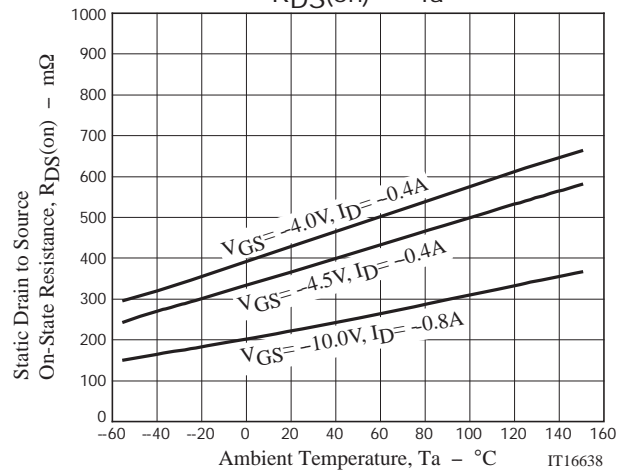
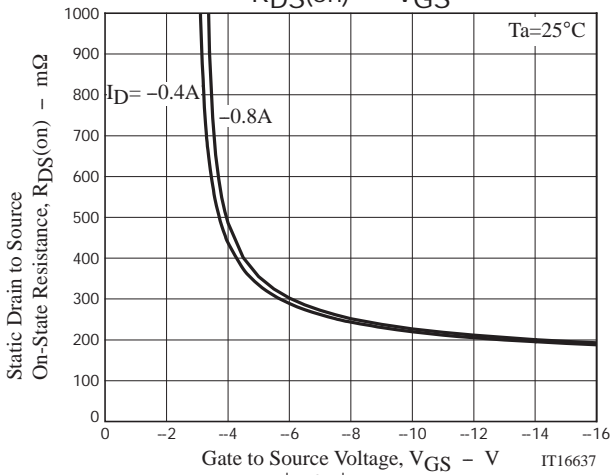
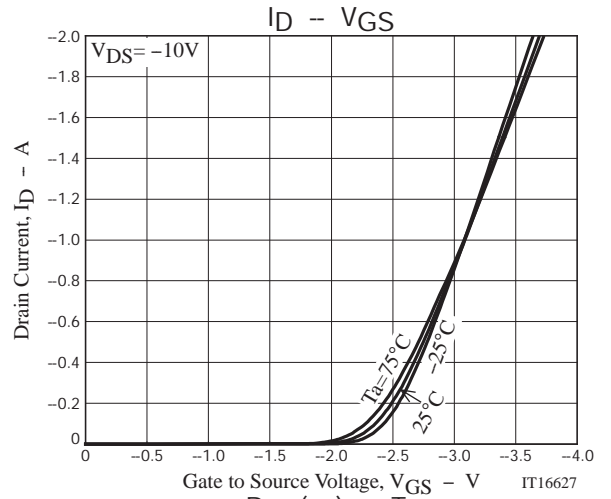
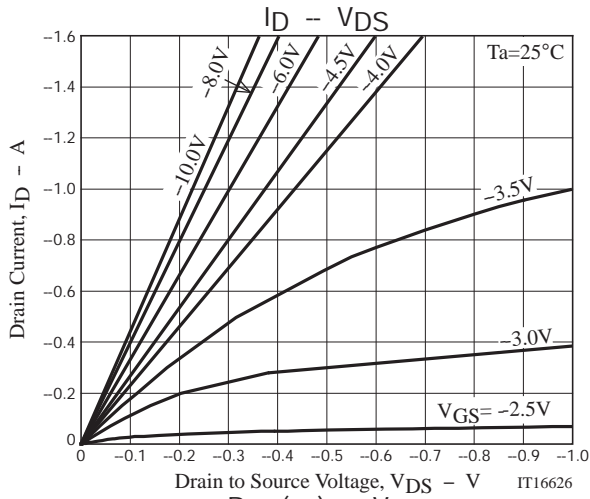
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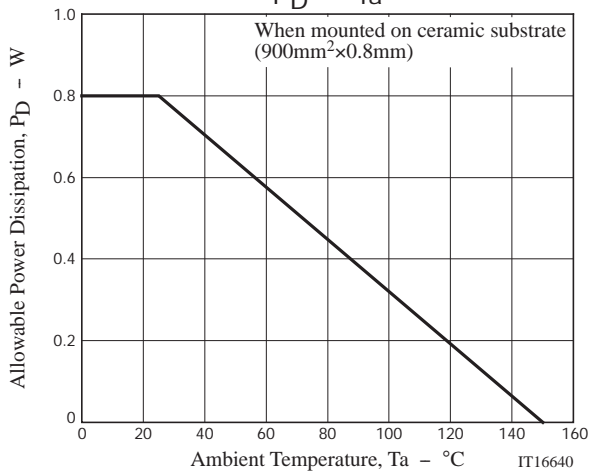
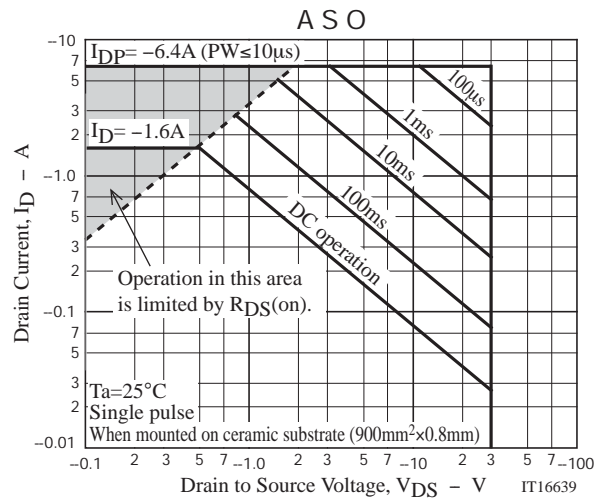
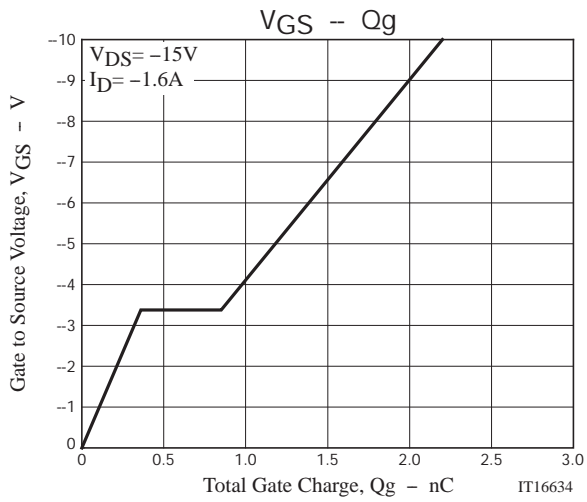
## Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}, V_{GS}=0\text{V}$	-30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30\text{V}, V_{GS}=0\text{V}$			-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	$V_{GS(off)}$	$V_{DS}=-10\text{V}, I_D=-1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}, I_D=-0.8\text{A}$		1.3		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.8\text{A}, V_{GS}=-10\text{V}$		227	295	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-0.4\text{A}, V_{GS}=-4.5\text{V}$		374	523	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-0.4\text{A}, V_{GS}=-4\text{V}$		435	609	$\text{m}\Omega$
Input Capacitance	$C_{iss}$			82		$\text{pF}$
Output Capacitance	$C_{oss}$	$V_{DS}=-10\text{V}, f=1\text{MHz}$		22		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			16		$\text{pF}$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		4.0		ns
Rise Time	$t_r$			3.3		ns
Turn-OFF Delay Time	$t_{d(off)}$			12		ns
Fall Time	$t_f$			5.4		ns
Total Gate Charge	$Q_g$				2.2	
Gate to Source Charge	$Q_{gs}$	$V_{DS}=-15\text{V}, V_{GS}=-10\text{V}, I_D=-1.6\text{A}$		0.36		nC
Gate to Drain "Miller" Charge	$Q_{gd}$			0.49		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1.6\text{A}, V_{GS}=0\text{V}$		-0.9	-1.5	V

## Switching Time Test Circuit







Taping Specification

MCH3375-TL-H

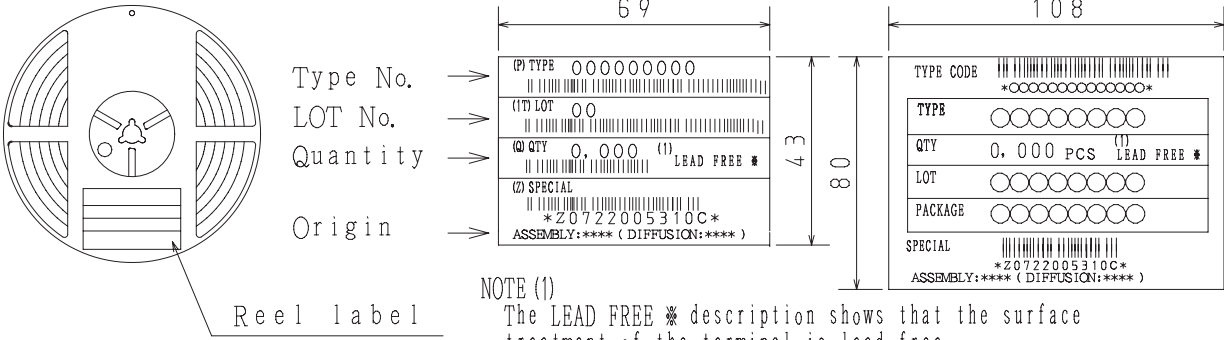
1. Packing Format

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)
MCPH3	MCPH3	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, Inner box label (unit:mm)      Outer box label

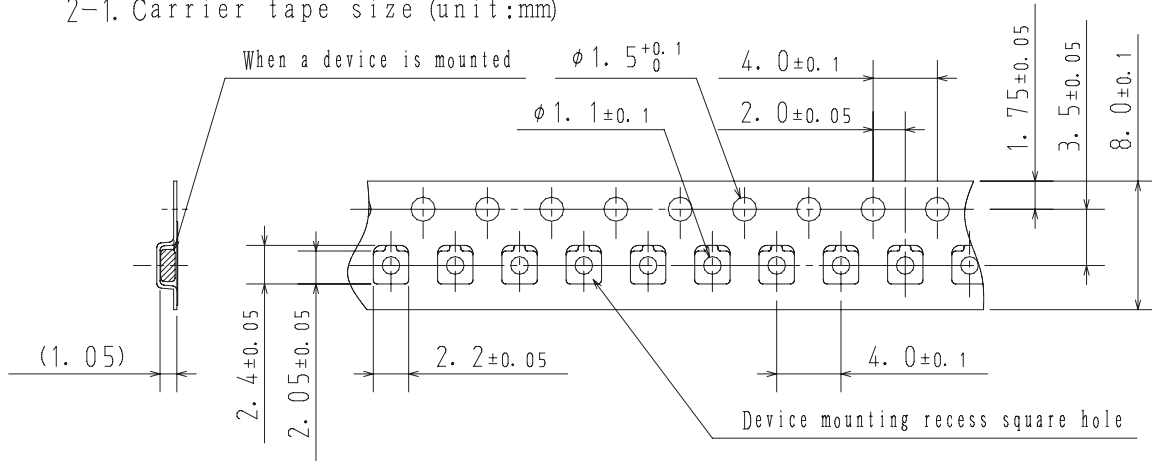
It is a label at the time of factory shipments. The form of a label may change in physical distribution process.



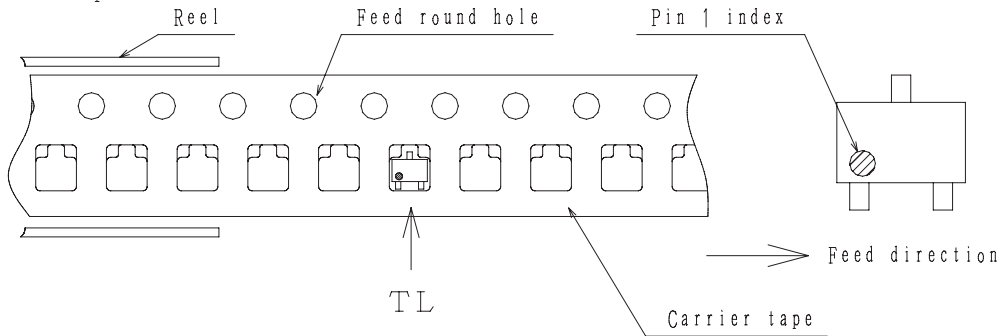
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



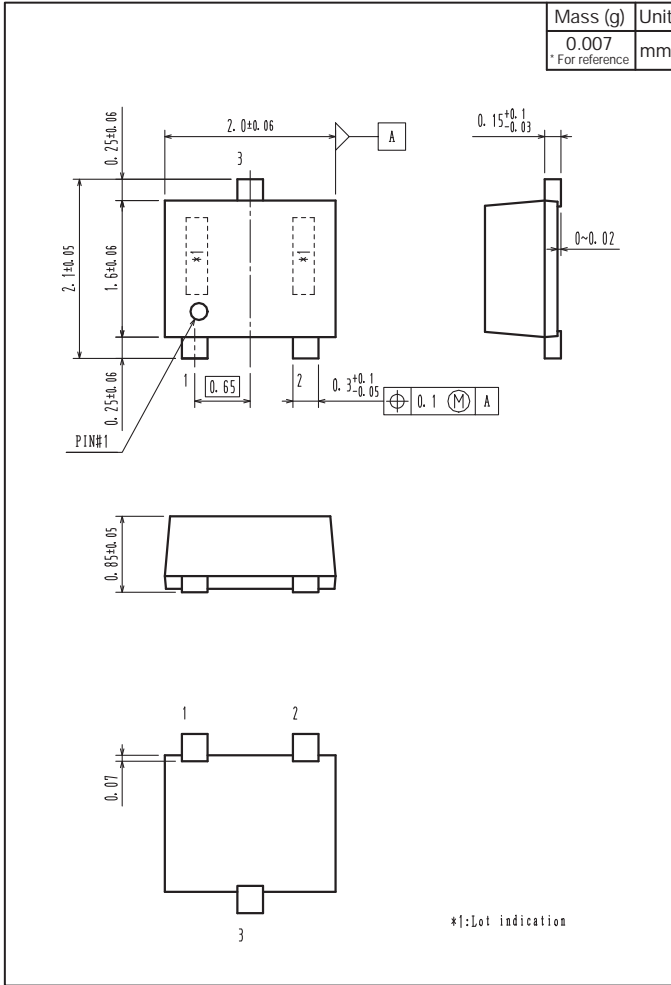
2-2. Device placement direction



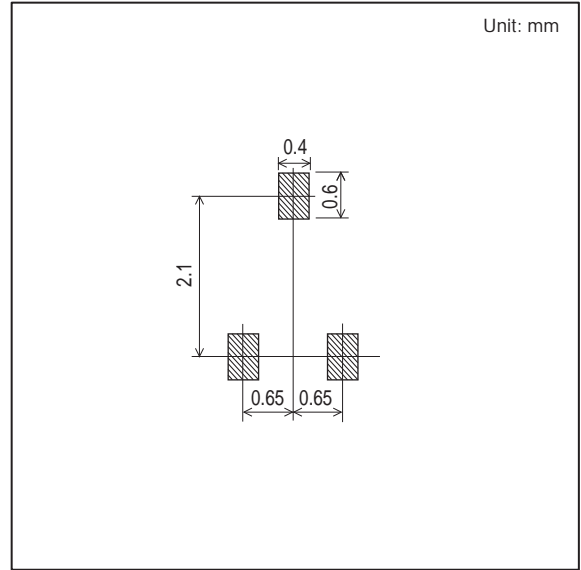
Those with pin 1 index on the feed hole side.....TL

# MCH3375

## Outline Drawing MCH3375-TL-H



## Land Pattern Example



Note on usage : Since the MCH3375 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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