



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH3376 — P-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Low ON-resistance
- 1.8V drive
- Protection diode in

### Specifications

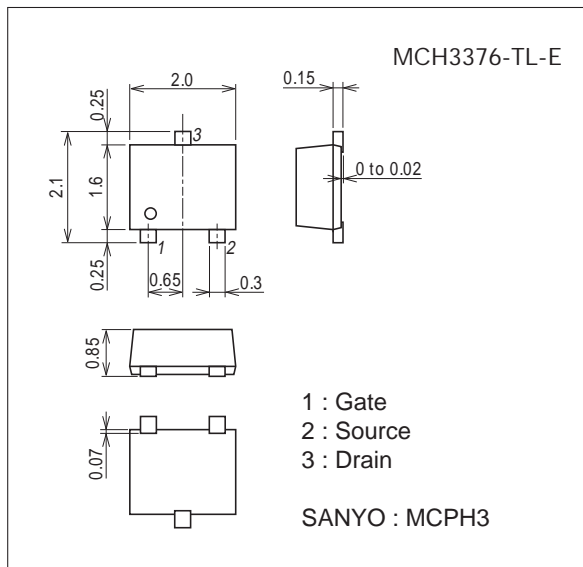
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		-20	V
Gate-to-Source Voltage	VGSS		±10	V
Drain Current (DC)	ID		-1.5	A
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	-6	A
Allowable Power Dissipation	PD	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	0.8	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

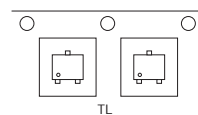
7019A-003



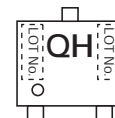
### Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

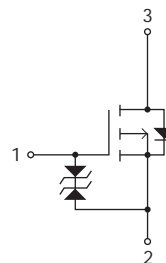
### Packing Type: TL



### Marking



### Electrical Connection

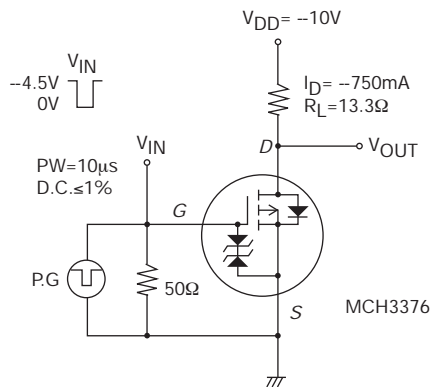


# MCH3376

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

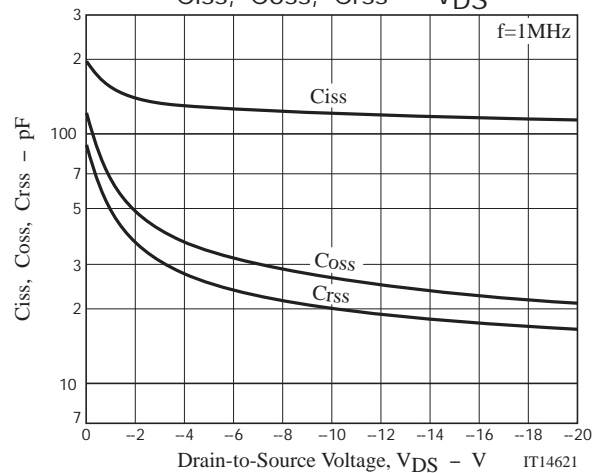
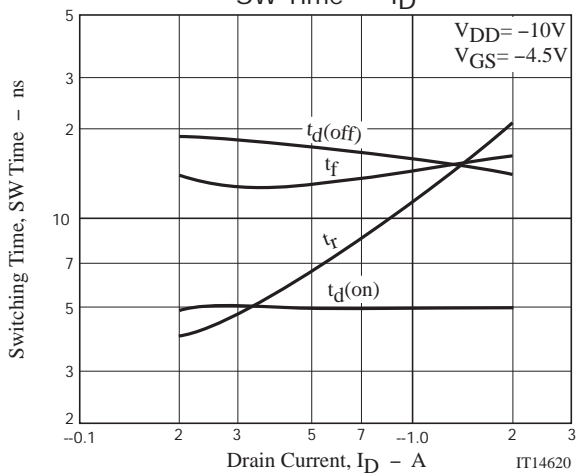
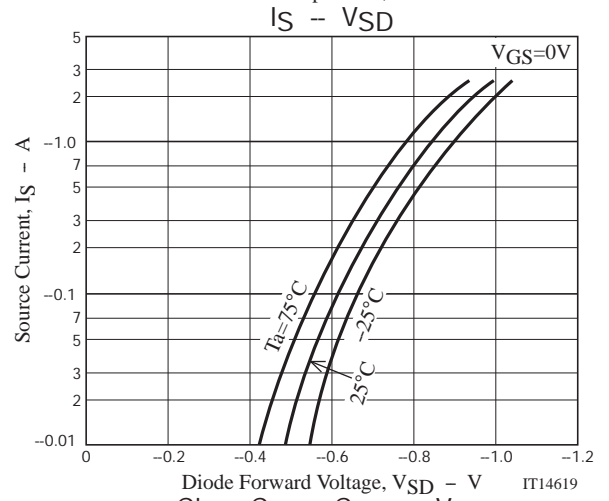
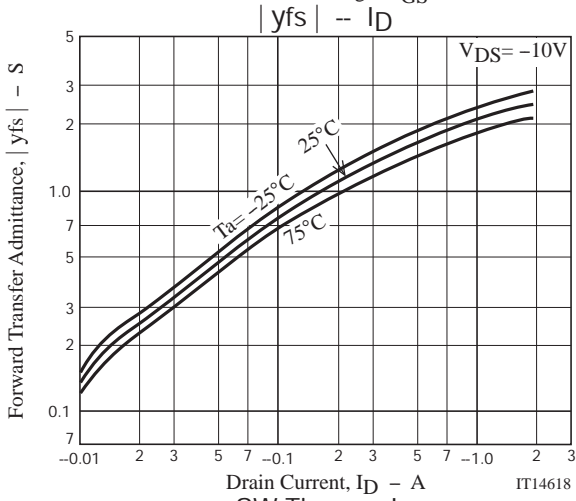
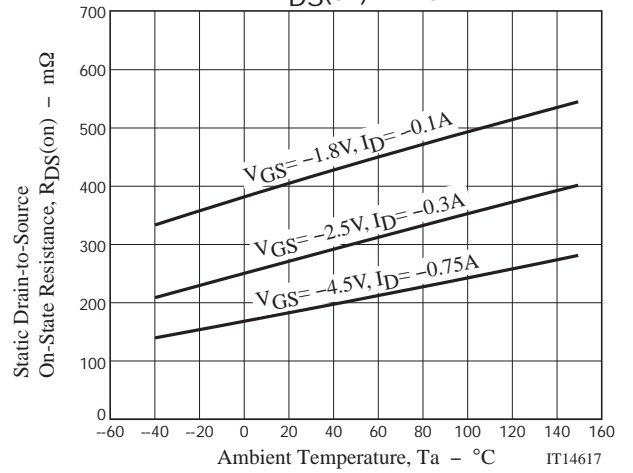
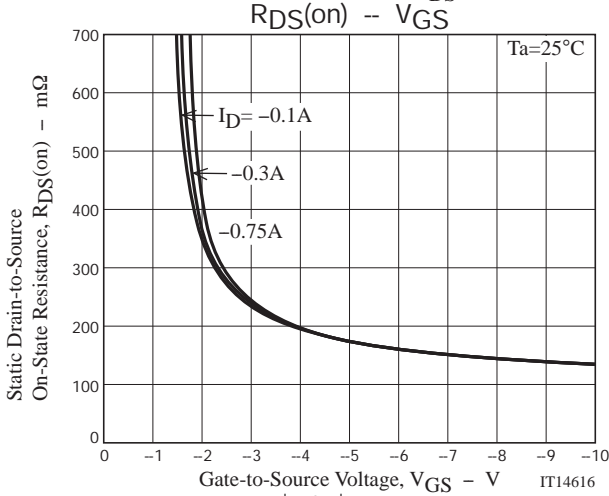
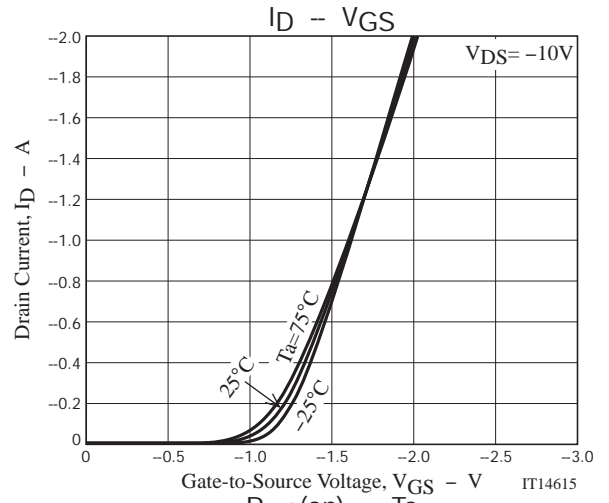
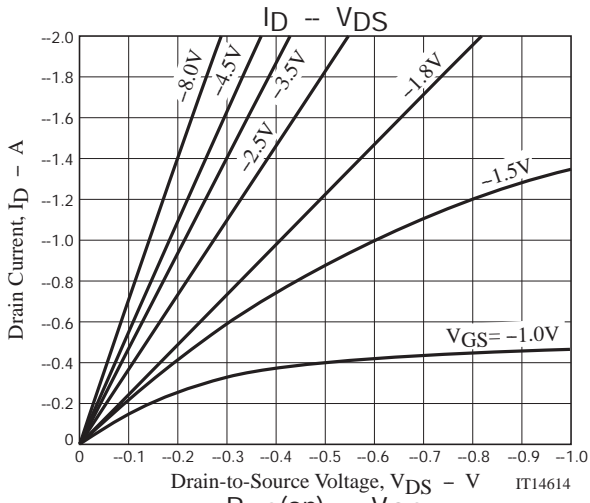
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ , $V_{GS}=0\text{V}$	-30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30\text{V}$ , $V_{GS}=0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
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

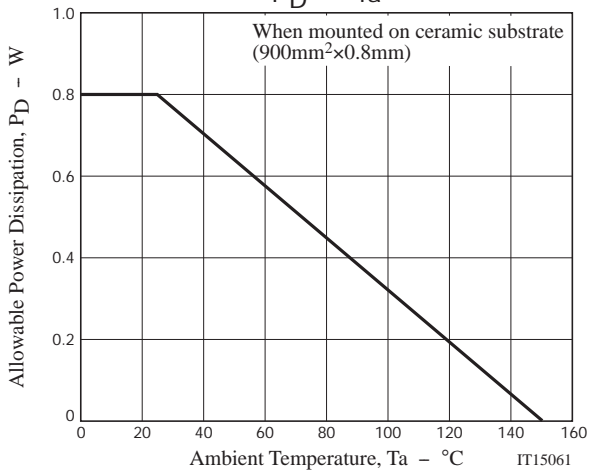
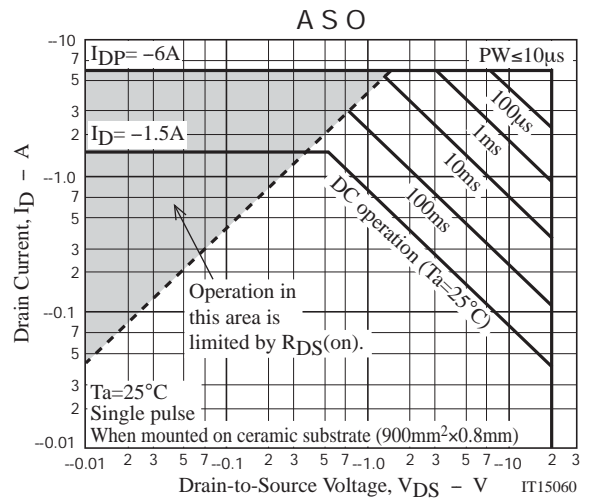
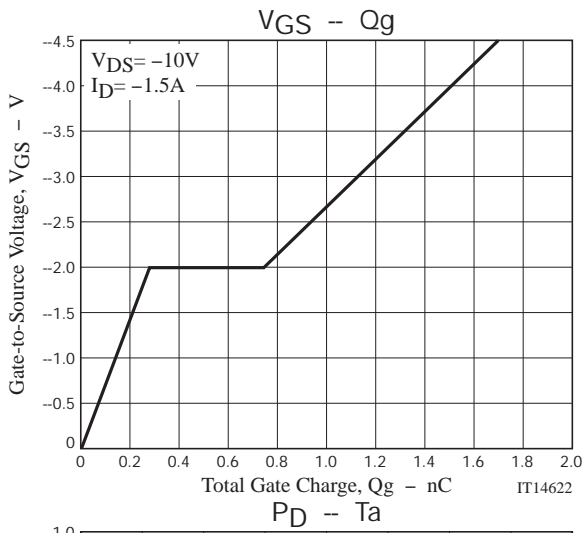
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
MCH3376-TL-E	MCPH3	3,000pcs./reel	Pb Free





Taping Specification

MCH3376-TL-E

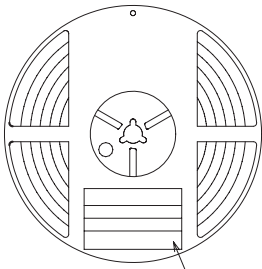
1. Packing Format

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)
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

Reel label, Inner box label  
(unit: mm)

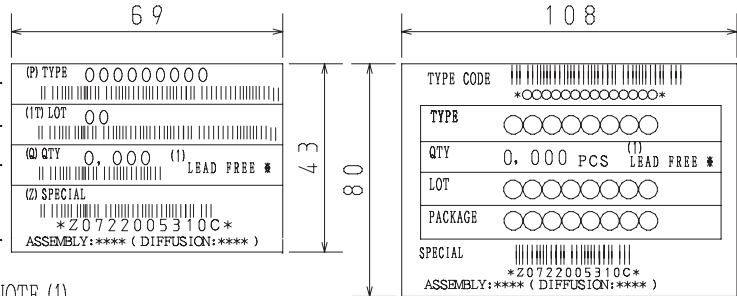
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Type No.  
LOT No.  
Quantity  
Origin

Reel label



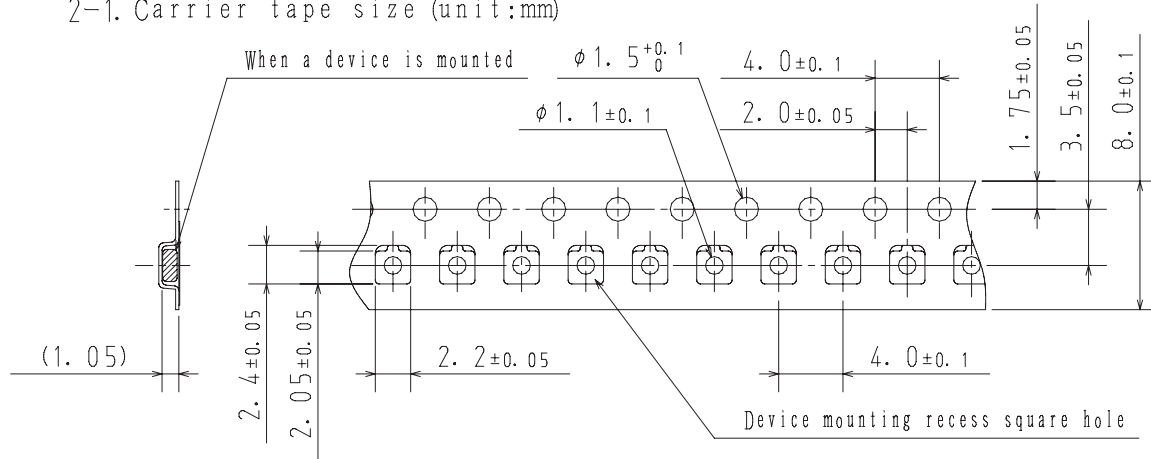
NOTE (1)

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

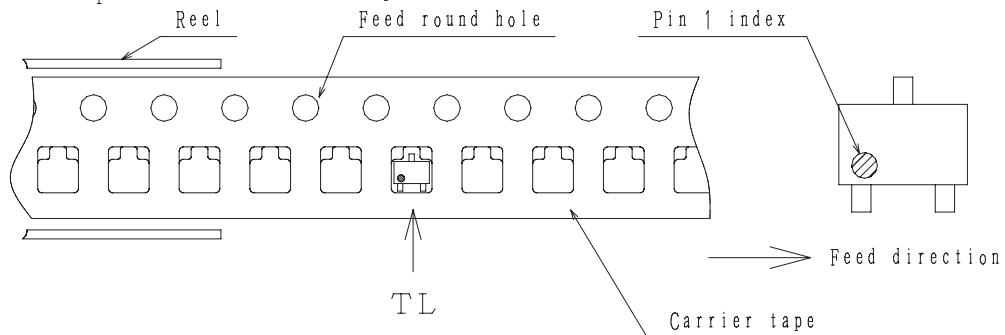
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



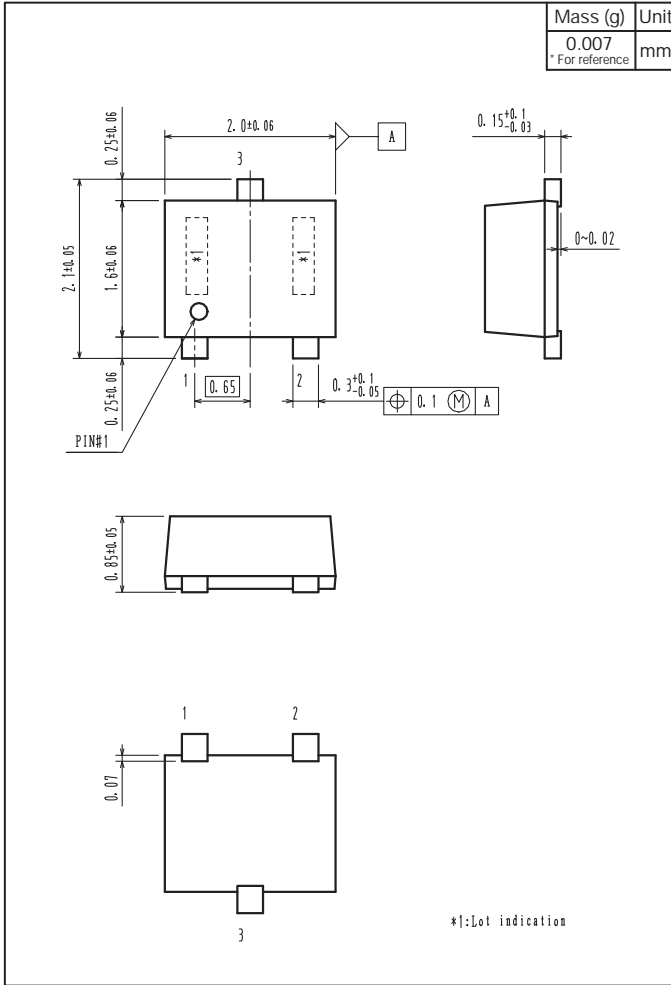
2-2. Device placement direction



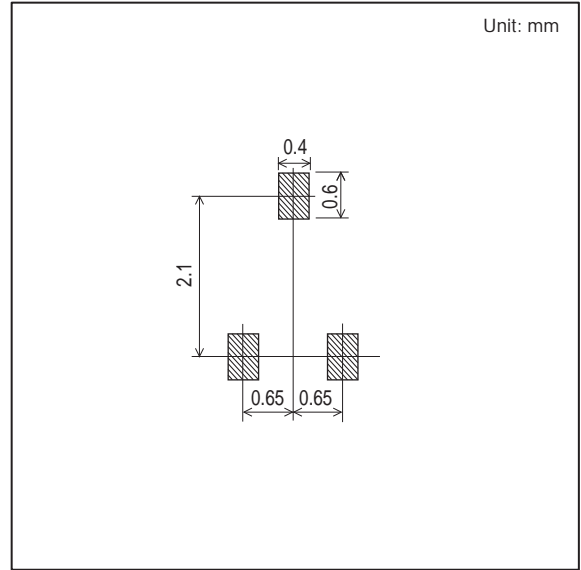
Those with pin 1 index on the feed hole side.....TL

# MCH3376

## Outline Drawing MCH3376-TL-E



## Land Pattern Example



Note on usage : Since the MCH3376 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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