



# MCH3376

## Power MOSFET -20V, 241mΩ, -1.5A, Single P-Channel

ON Semiconductor®

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### Features

- ESD diode-Protected gate
- High speed switching and Low loss
- Pb-free and RoHS Compliance
- Drive at low voltage: 1.8V drive
- Low RDS(on)

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

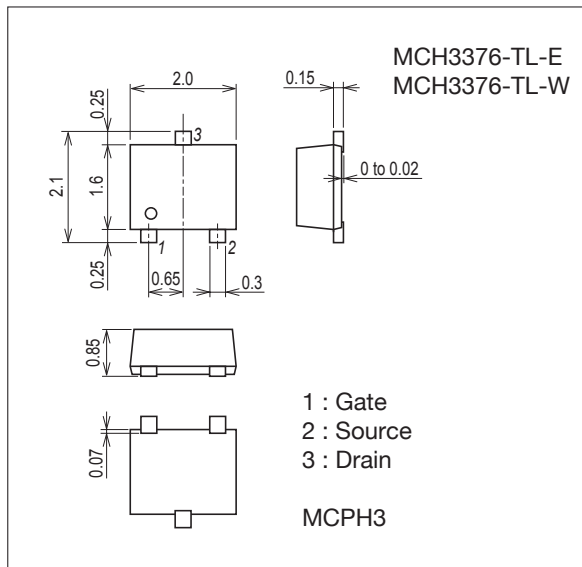
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-1.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-6	A
Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	0.8	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### Package Dimensions

unit : mm (typ)

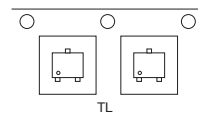
7019A-003



### Product & Package Information

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

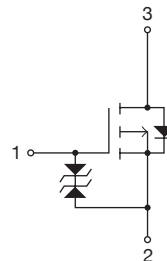
### Packing Type: TL



### Marking



### Electrical Connection



### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

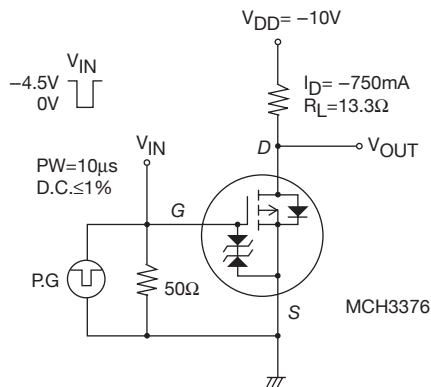
# MCH3376

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V, V_{GS} = 0V$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = -10V, I_D = -1mA$	-0.4		-1.4	V
Forward Transconductance	$g_{FS}$	$V_{DS} = -10V, I_D = -750mA$	1.14	1.9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -750mA, V_{GS} = -4.5V$		185	241	$m\Omega$
	$R_{DS(on)2}$	$I_D = -300mA, V_{GS} = -2.5V$		275	385	$m\Omega$
	$R_{DS(on)3}$	$I_D = -100mA, V_{GS} = -1.8V$		410	615	$m\Omega$
Input Capacitance	$C_{iss}$			120		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -10V, f = 1MHz$		26		pF
Reverse Transfer Capacitance	$C_{rss}$			20		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		5.3		ns
Rise Time	$t_r$			9.7		ns
Turn-OFF Delay Time	$t_{d(off)}$			16		ns
Fall Time	$t_f$			14		ns
Total Gate Charge	$Q_g$				1.7	
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -1.5A$		0.28		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.47		nC
Forward Diode Voltage	$V_{SD}$	$I_S = -1.5A, V_{GS} = 0V$		-0.89	-1.2	V

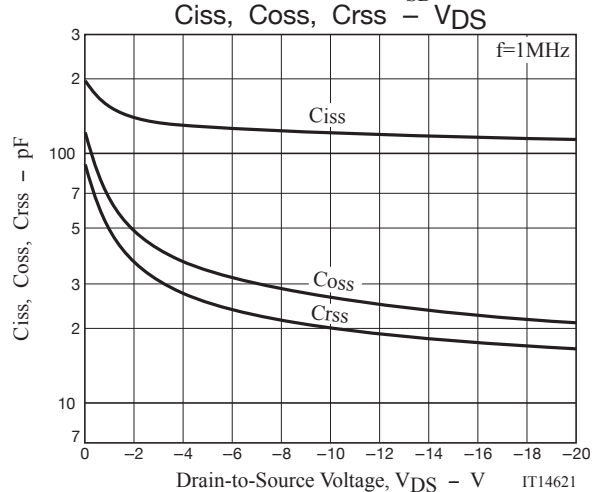
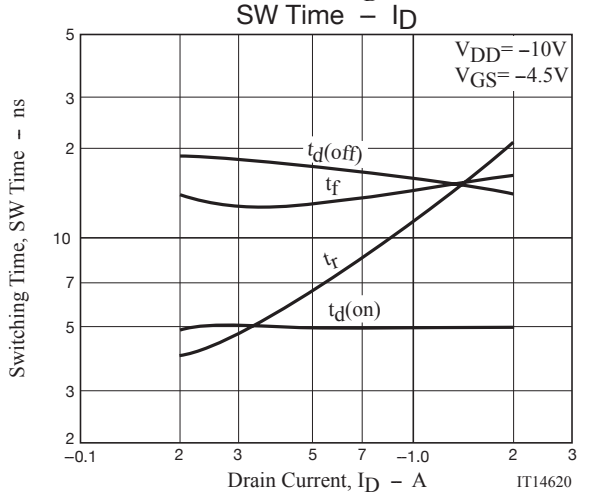
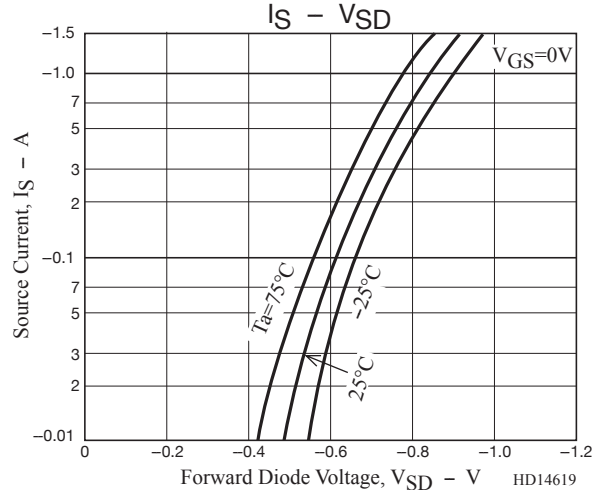
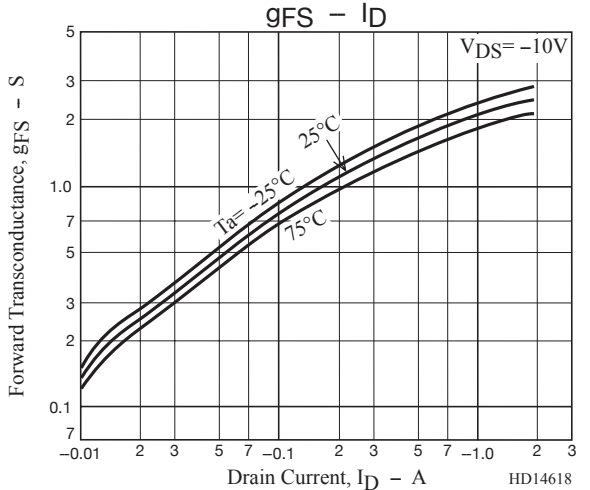
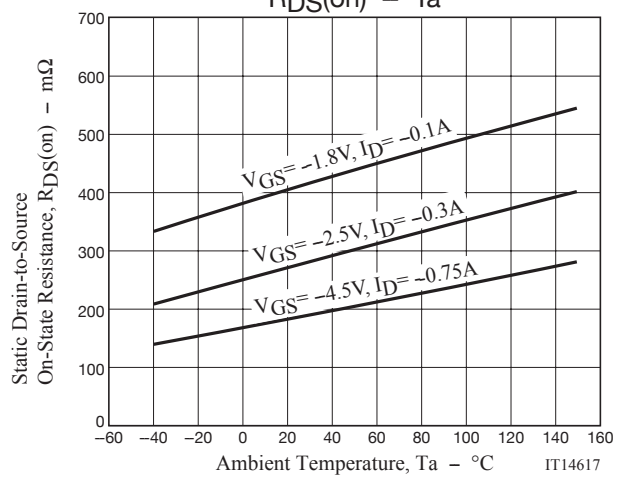
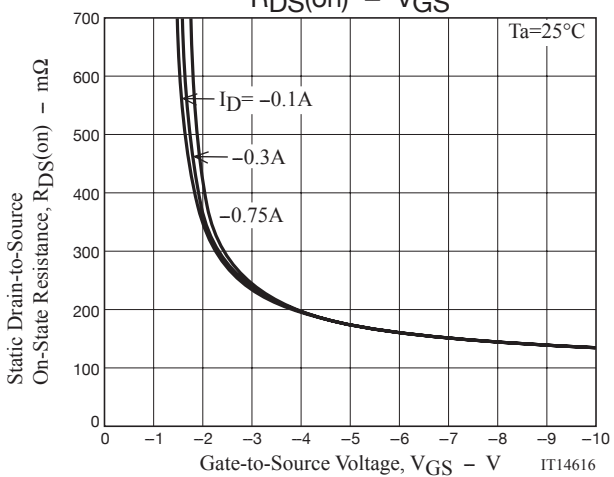
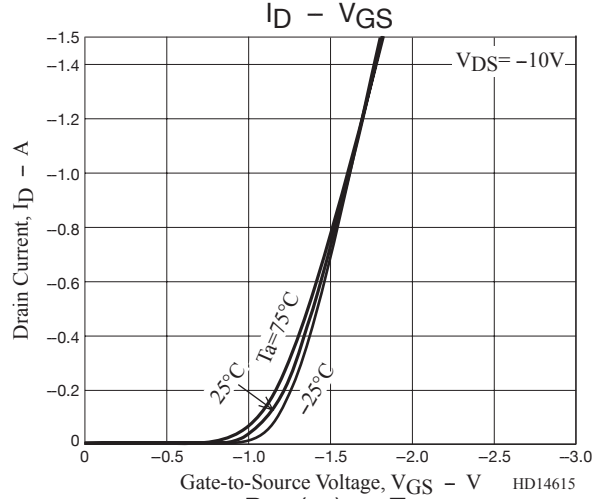
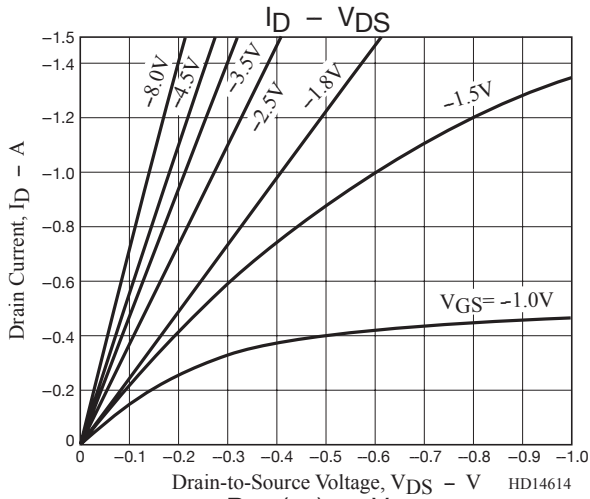
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

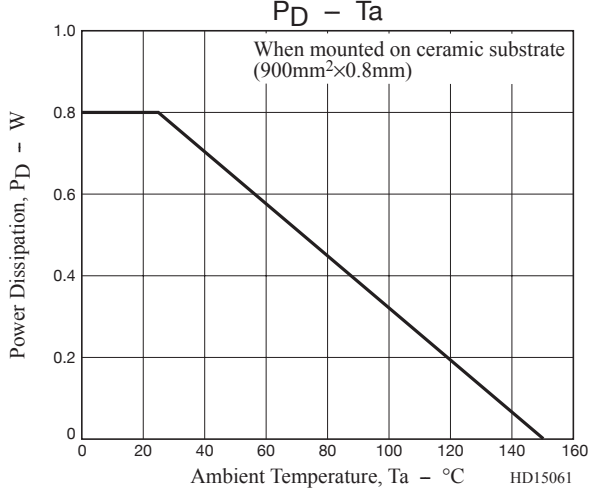
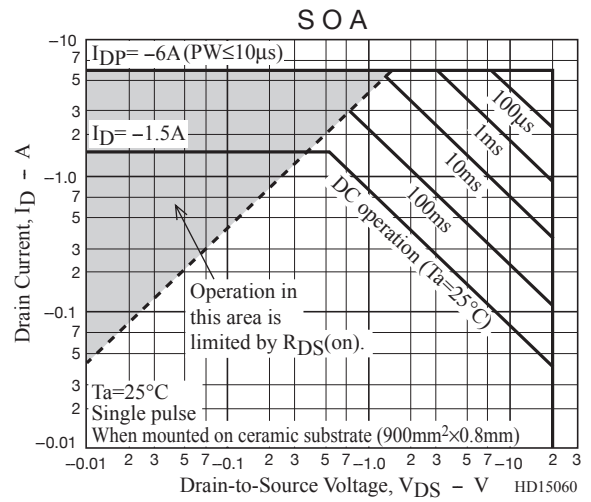
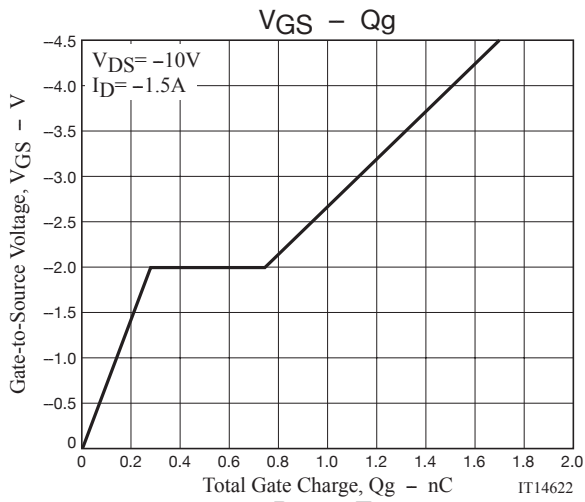
## Switching Time Test Circuit



## Ordering Information

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

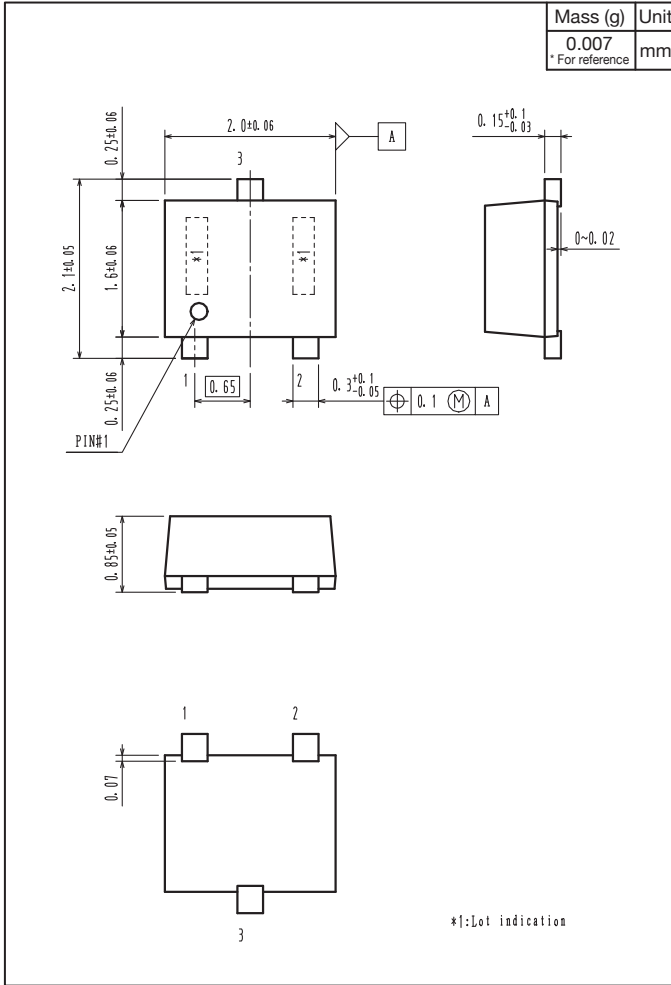




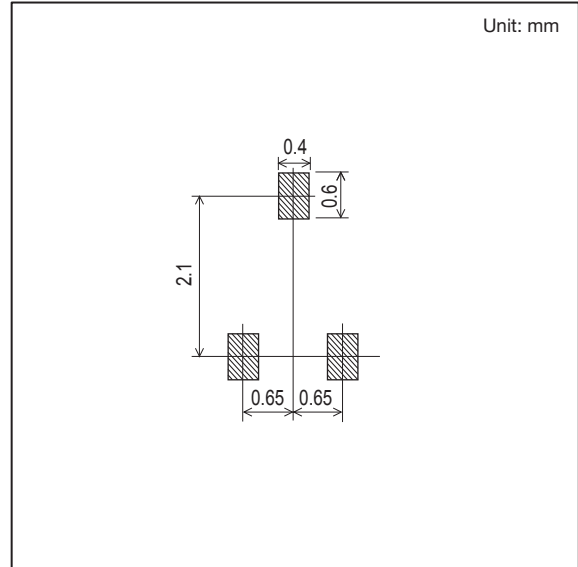
# MCH3376

## Outline Drawing

MCH3376-TL-E, MCH3376-TL-W



## 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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