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# MCH6661

## N-Channel Power MOSFET 30V, 1.8A, 188mΩ, Dual MCPH6

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance Nch :  $R_{DS(on)1}=145m\Omega$  (typ.)
- 4V drive
- Halogen free compliance

### Specifications

#### Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	$V_{DSS}$		30	V
Gate to Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		1.8	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	7.2	A
Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm) 1unit	0.8	W
Junction Temperature	$T_j$		150	°C
Storage Temperature Purposes,	$T_{stg}$		-55 to +150	°C
Lead Temperature for Soldering Purposes, 3mm from Case for 10 Seconds	$T_L$		260	°C

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

\* Machine Model

#### Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient	$R_{\theta JA}$	156.3	°C/W

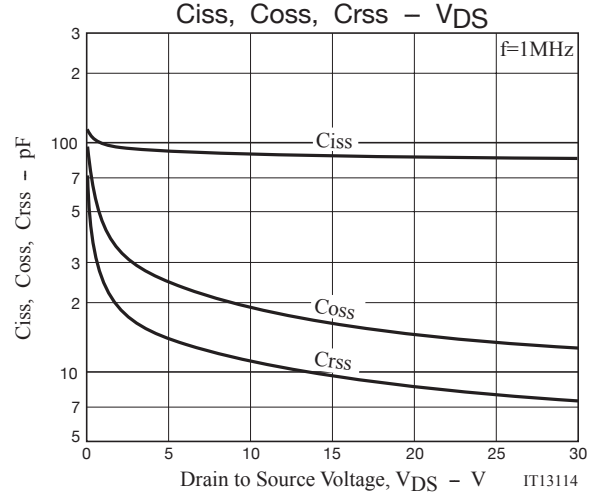
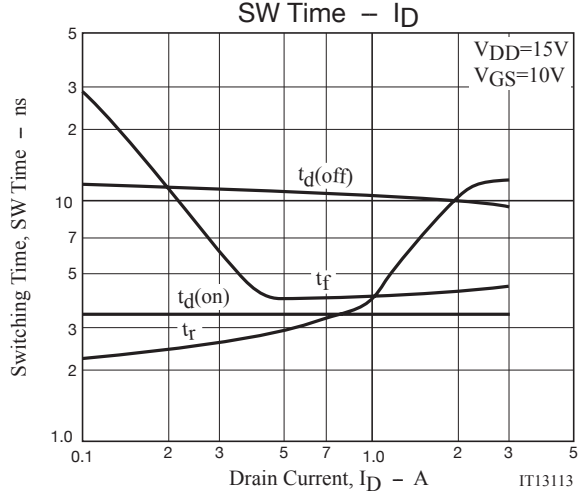
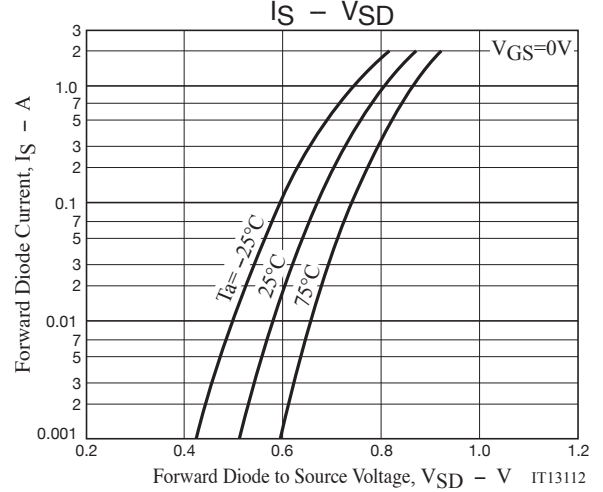
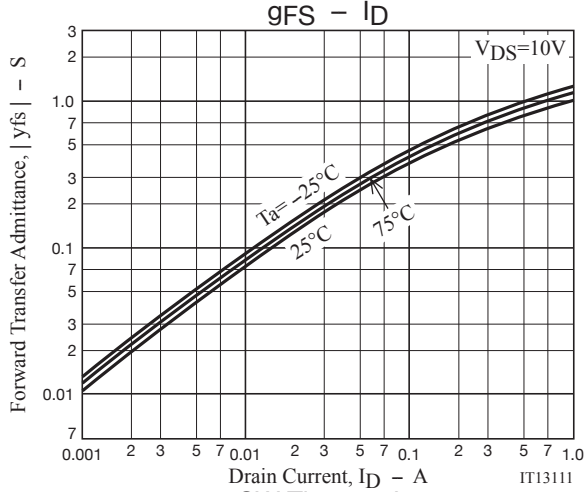
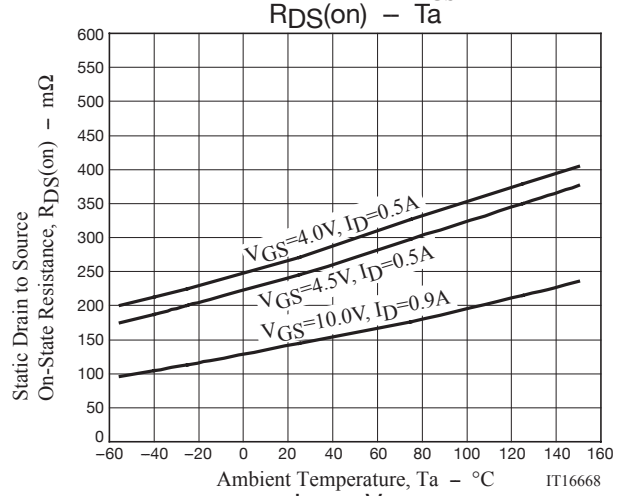
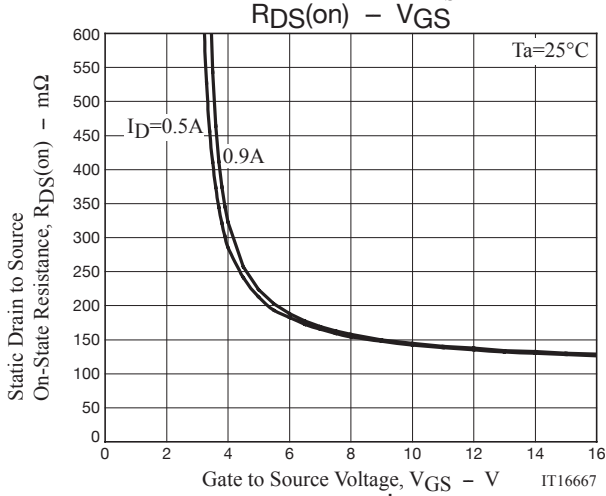
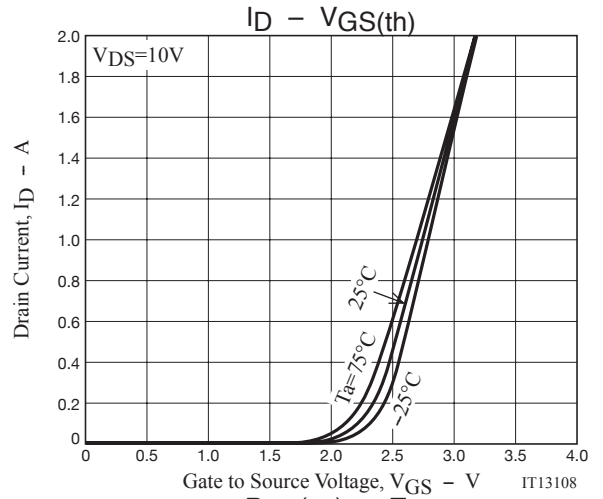
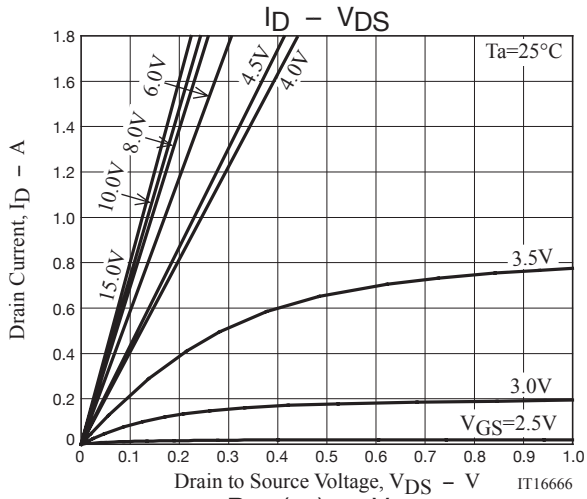
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

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

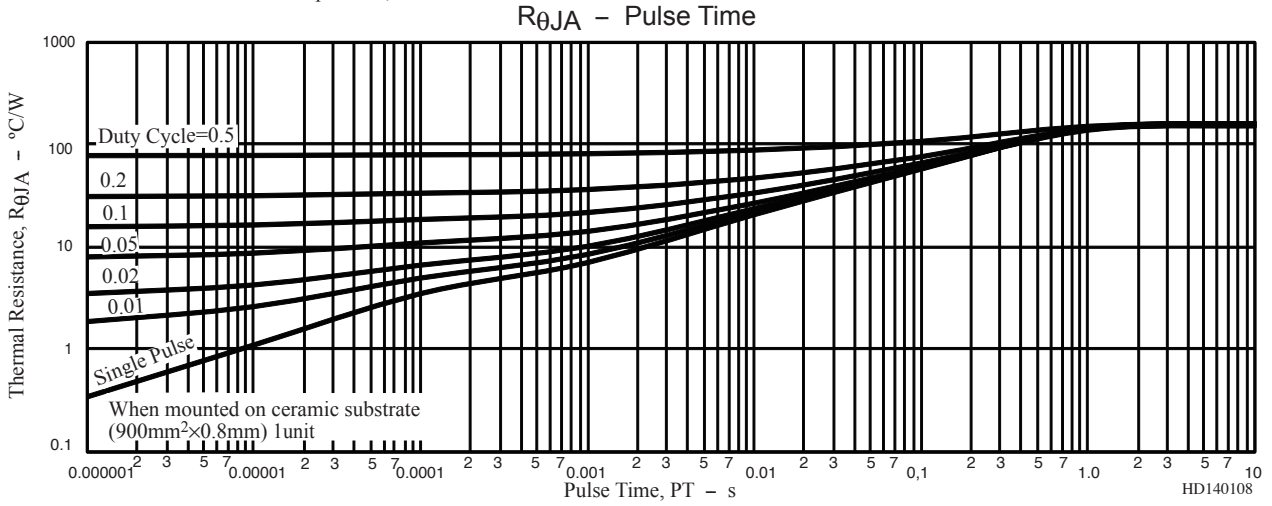
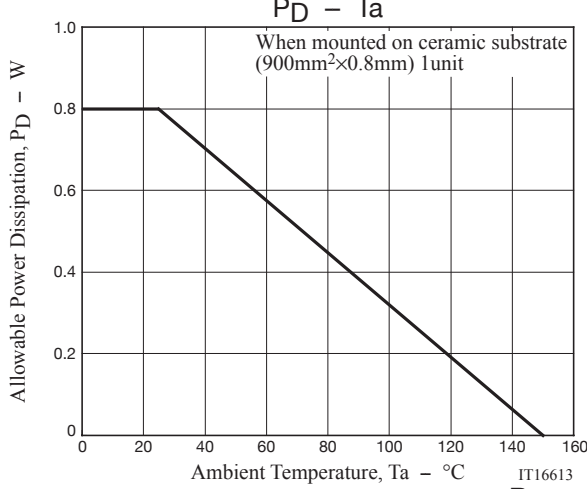
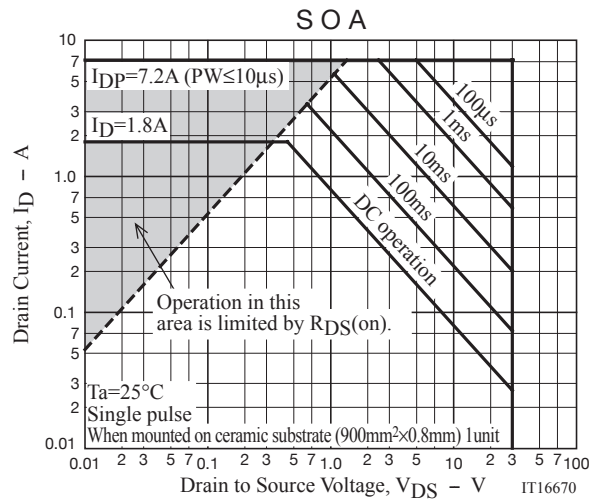
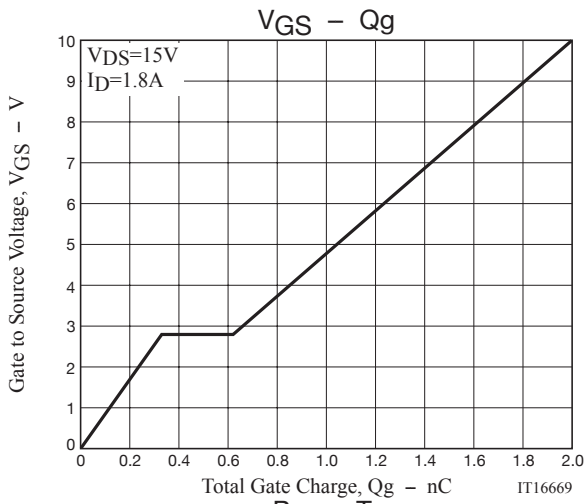
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA$ , $V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ , $V_{GS}=0V$			1	$\mu A$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V$ , $V_{DS}=0V$			$\pm 10$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10V$ , $I_D=1mA$	1.2		2.6	V
Forward Transconductance	$g_{FS}$	$V_{DS}=10V$ , $I_D=0.9A$		1.1		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=0.9A$ , $V_{GS}=10V$		145	188	$m\Omega$
	$R_{DS(on)2}$	$I_D=0.5A$ , $V_{GS}=4.5V$		245	343	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.5A$ , $V_{GS}=4V$		270	378	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V$ , $f=1MHz$		88		pF
Output Capacitance	$C_{oss}$			19		pF
Reverse Transfer Capacitance	$C_{rss}$			11		pF
Turn-ON Delay Time	$t_{d(on)}$			3.4		ns
Rise Time	$t_r$	See specified Test Circuit.		3.6		ns
Turn-OFF Delay Time	$t_{d(off)}$			10.5		ns
Fall Time	$t_f$			4.0		ns
Total Gate Charge	$Q_g$	$V_{DS}=15V$ , $V_{GS}=10V$ , $I_D=1.8A$		2.0		nC
Gate to Source Charge	$Q_{gs}$			0.33		nC
Gate to Drain "Miller" Charge	$Q_{gd}$			0.29		nC
Forward Diode Voltage	$V_{SD}$	$I_S=1.8A$ , $V_{GS}=0V$		0.86	1.2	V

#### ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.



# MCH6661



# MCH6661

## Package Dimensions

MCH6661-TL-W

### SC-88FL / MCPH6

CASE 419AS

ISSUE O

unit : mm

1:Source1

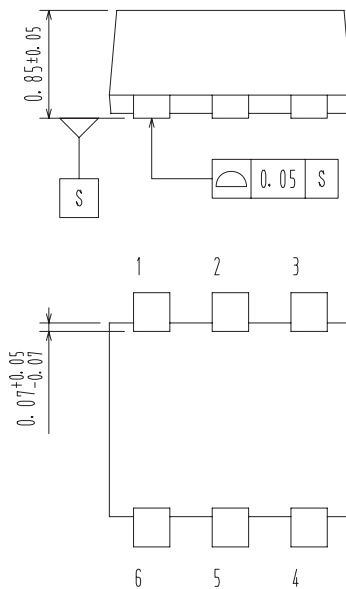
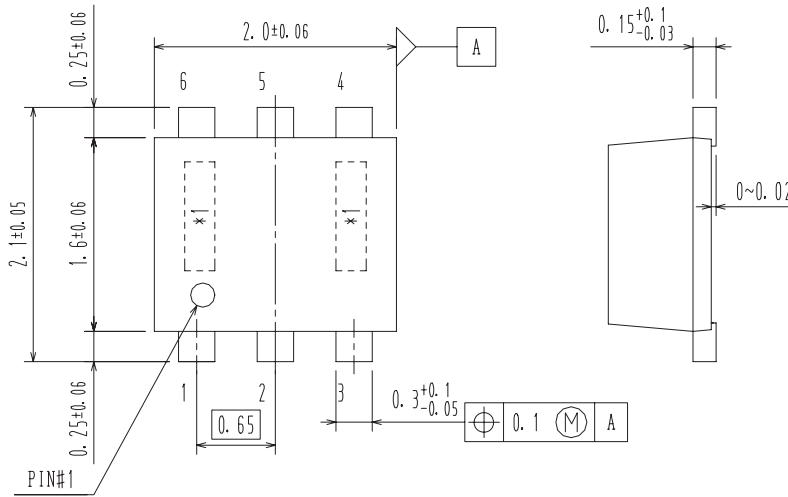
2:Gate1

3:Drain2

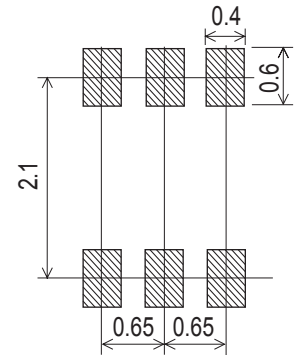
4:Source2

5:Gate2

6:Drain1



### Recommended Soldering Footprint

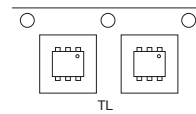


\*1: Lot indication

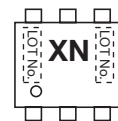
## Ordering & Package Information

Device	Package	Shipping	note
MCH6661-TL-W	MCPH6, SC-88,SOT-363	3,000 pcs. / reel	Pb-Free and Halogen Free

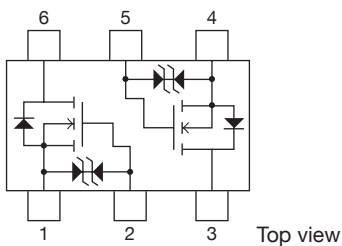
## Packing Type:TL



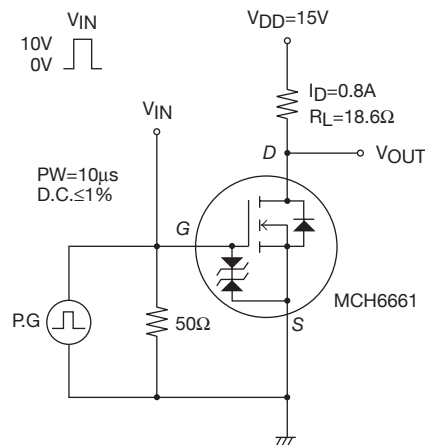
## Marking



## Electrical Connection



## Switching Time Test Circuit



Note on usage : Since the MCH6661 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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