



# 6HP04MH

## P-Channel Small Single MOSFET -60V, -370mA, 4.2Ω Single MCPH3

ON Semiconductor®

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### Features

- 4V drive
- Halogen free compliance
- Protection diode in

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain to Source Voltage	V <sub>DSS</sub>		-60	V
Gate to Source Voltage	V <sub>GS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-370	mA
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-1480	mA
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	0.6	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

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.

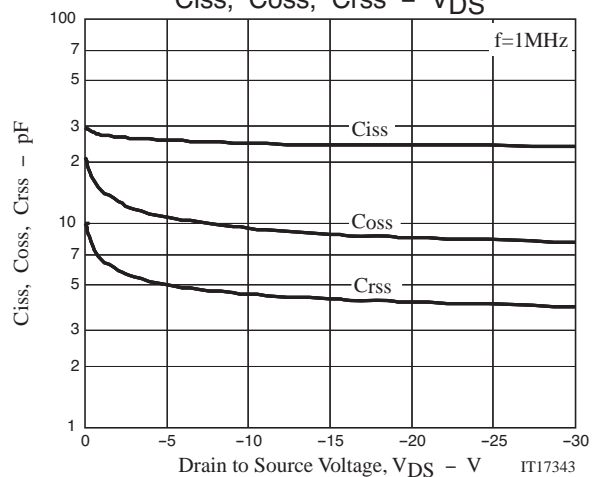
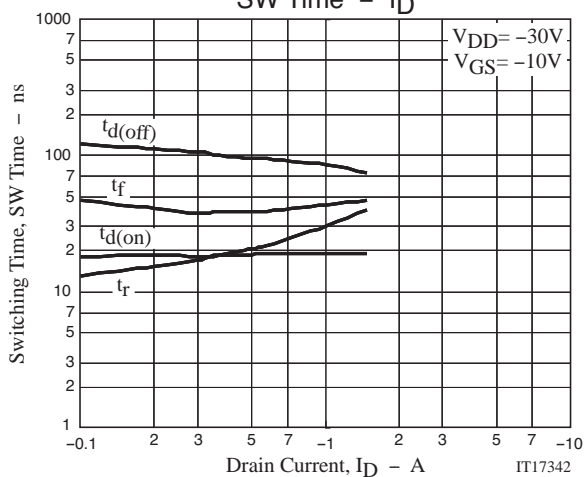
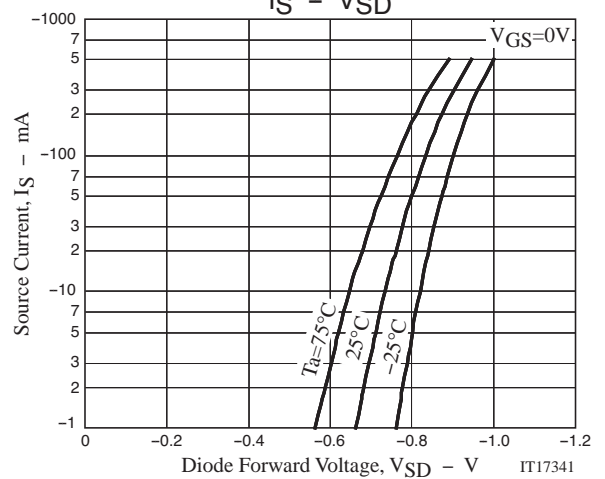
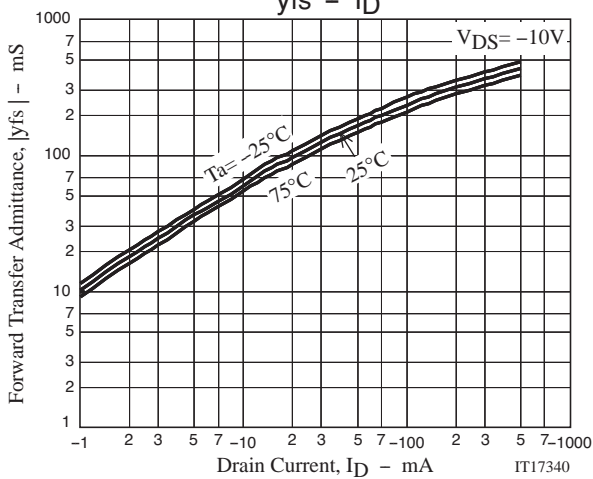
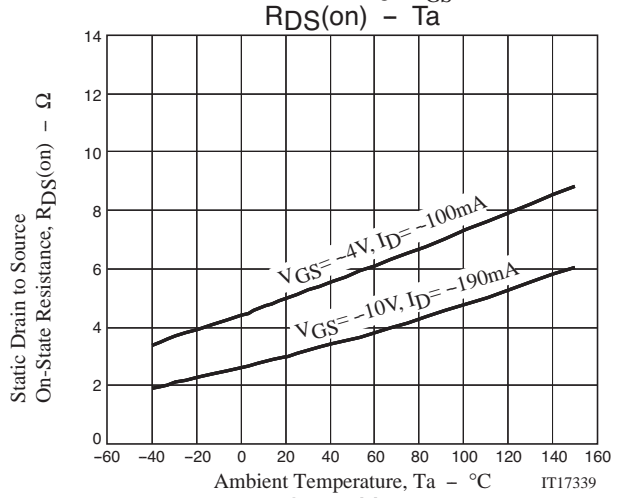
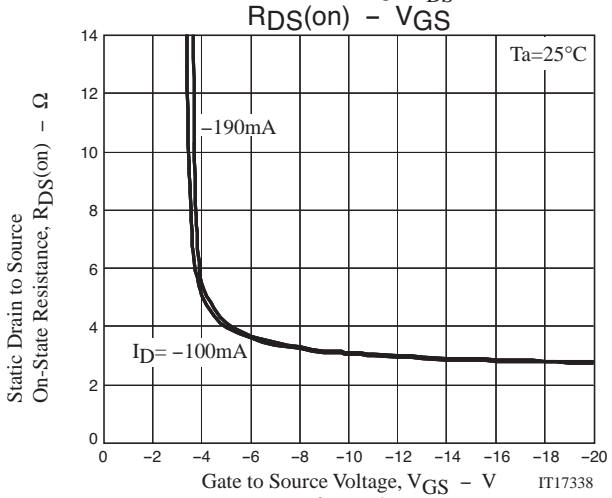
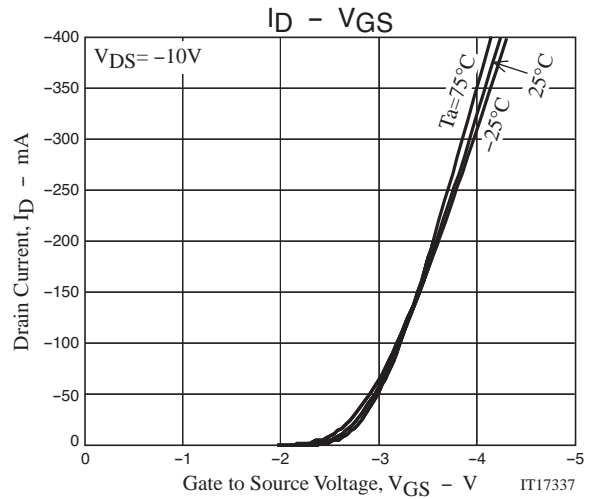
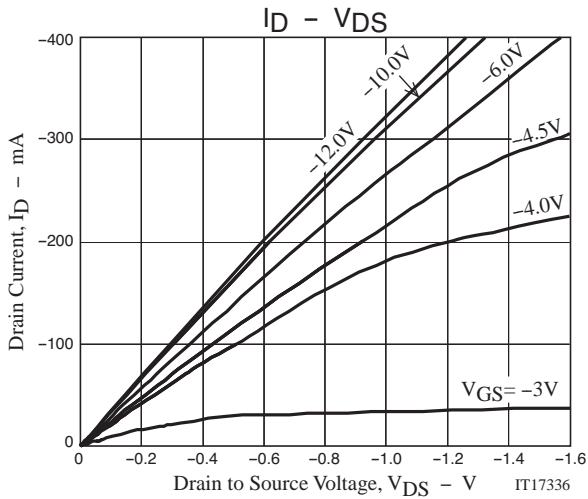
#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-1	μA
Gate to Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-100μA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-190mA		310		mS
Static Drain to Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-190mA, V <sub>GS</sub> =-10V		3.1	4.2	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-100mA, V <sub>GS</sub> =-4V		5.1	7.3	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-20V, f=1MHz		24.1		pF
Output Capacitance	C <sub>oss</sub>			8.5		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			4.1		pF
Turn-ON Delay Time	t <sub>d(on)</sub>			18.4		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		15.2		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			113		ns
Fall Time	t <sub>f</sub>			41		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-370mA		0.84		nC
Gate to Source Charge	Q <sub>gs</sub>			0.19		nC
Gate to Drain "Miller" Charge	Q <sub>gd</sub>			0.21		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =-370mA, V <sub>GS</sub> =0V	-0.92		-1.2

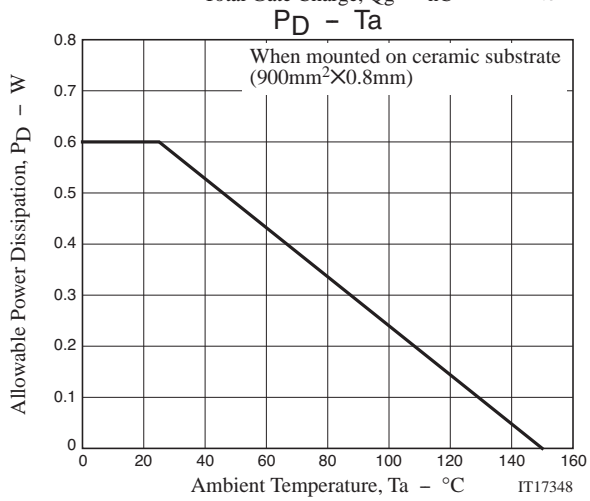
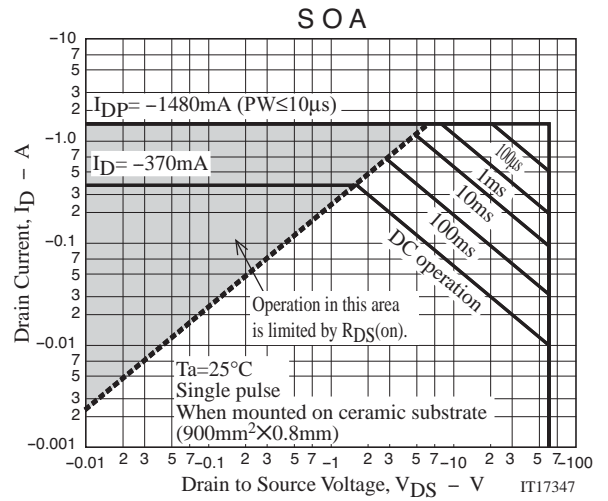
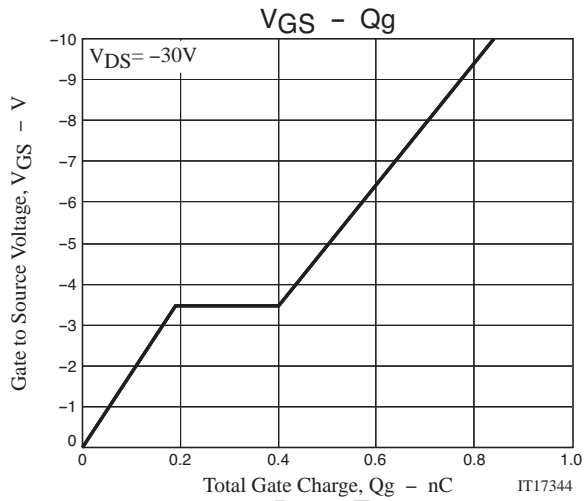
### ORDERING INFORMATION

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

# 6HP04MH



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## Package Dimensions

6HP04MH-TL-W

SC-70FL/MCPH3

CASE 419AQ

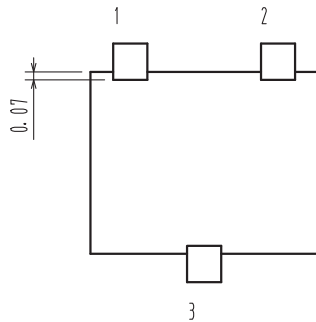
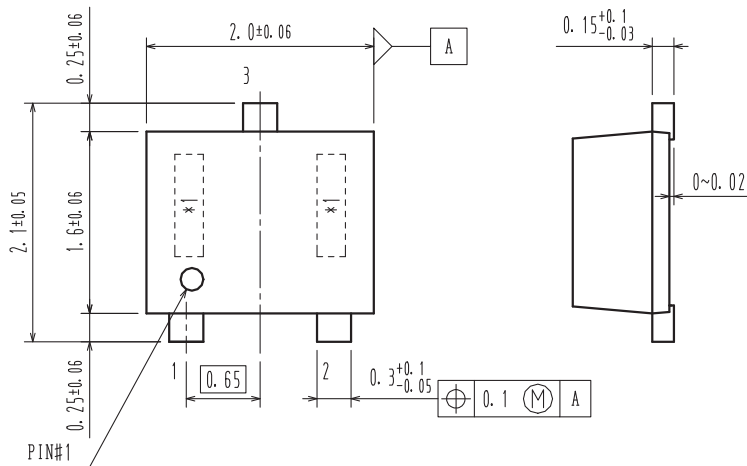
ISSUE O

Unit : mm

1: Gate

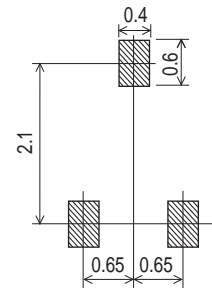
2: Source

3: Drain



\*|: Lot indication

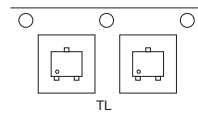
## Land Pattern Example



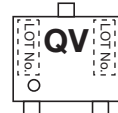
## Ordering & Package Information

Device	Package	Shipping	memo
6HP04MH-TL-W	MCPH3 SC-70, SOT-323	3,000 pcs. / reel	Pb-Free and Halogen Free

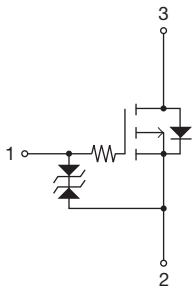
## Packing Type:TL



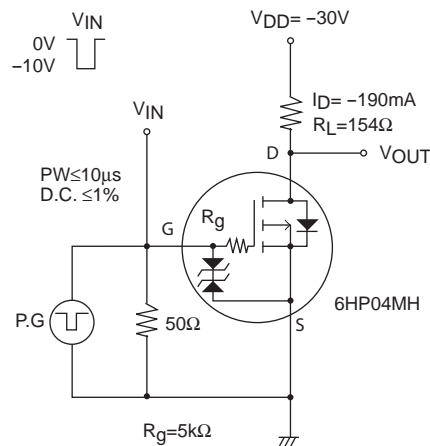
## Marking



## Electrical Connection



## Switching Time Test Circuit



Note on usage : Since the 6HP04MH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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