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1HP04CH

Advance Information

P-Channel Small Signal MOSFET –100V, –170mA, 18Ω, Single CPH3

Features

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

Specifications

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

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	V_{DSS}		–100	V
Gate to Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		–170	mA
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	–680	mA
Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² ×0.8mm)	0.6	W
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		–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.

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient When mounted on ceramic substrate (900mm ² ×0.8mm)	$R_{\theta JA}$	208	°C /W

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	–100			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -100\text{V}$, $V_{GS} = 0\text{V}$			–1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = -10\text{V}$, $I_D = -100\mu\text{A}$	–1.2		–2.6	V
Forward Transconductance	g_{FS}	$V_{DS} = -10\text{V}$, $I_D = -80\text{mA}$		170		mS
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D = -80\text{mA}$, $V_{GS} = -10\text{V}$		12.5	18	Ω
	$R_{DS(on)2}$	$I_D = -40\text{mA}$, $V_{GS} = -4\text{V}$		14	21	Ω
Input Capacitance	C_{iss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		14		pF
Output Capacitance	C_{oss}			2.8		pF
Reverse Transfer Capacitance	C_{rss}			0.9		pF

Continued on next page.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

ORDERING INFORMATION

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

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Continued from preceding page.

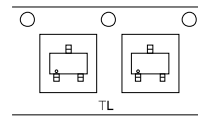
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		21		ns
Rise Time	t_r			18		ns
Turn-OFF Delay Time	$t_{d(off)}$			200		ns
Fall Time	t_f			81		ns
Total Gate Charge	Q_g	$V_{DS}=-50V, V_{GS}=-10V, I_D=-170mA$		0.9		nC
Gate to Source Charge	Q_{gs}			0.14		nC
Gate to Drain "Miller" Charge	Q_{gd}			0.27		nC
Forward Diode Voltage	V_{SD}	$I_S=-170mA, V_{GS}=0V$		-0.88	-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.

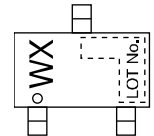
Ordering & Package Information

Device	Package	Shipping	note
1HP04CH-TL-W	CPH3, SC-59 SOT-23, TO-236	3,000 pcs. / reel	Pb-Free and Halogen Free

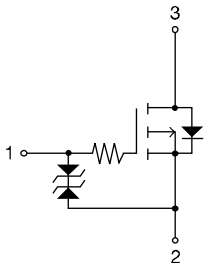
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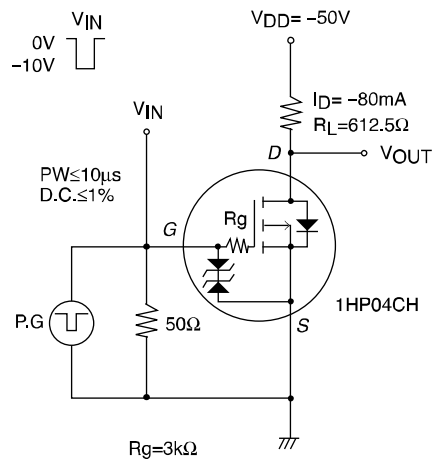
Marking



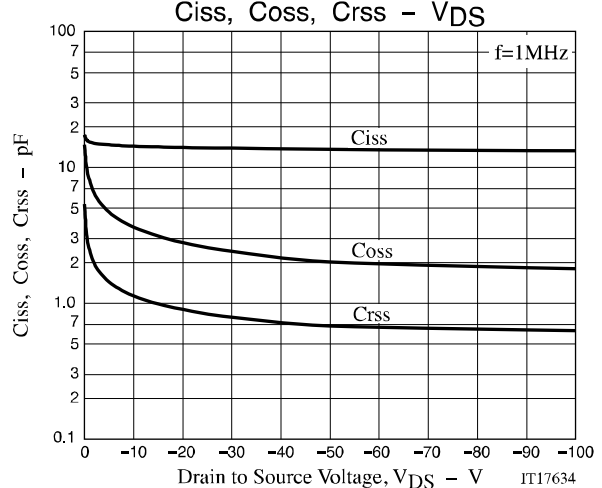
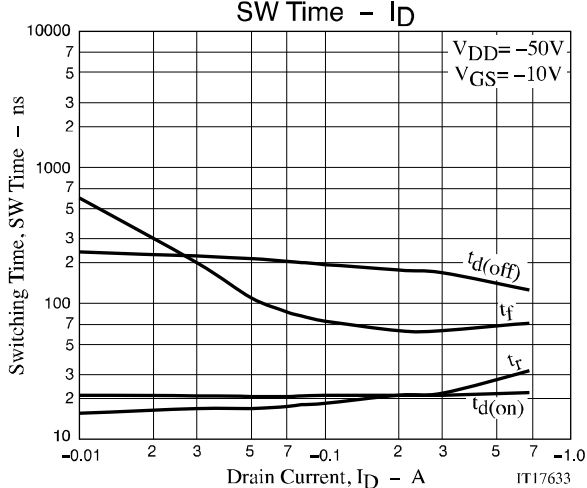
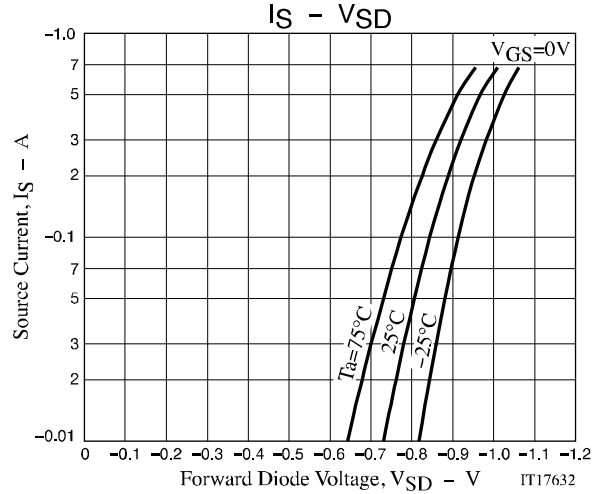
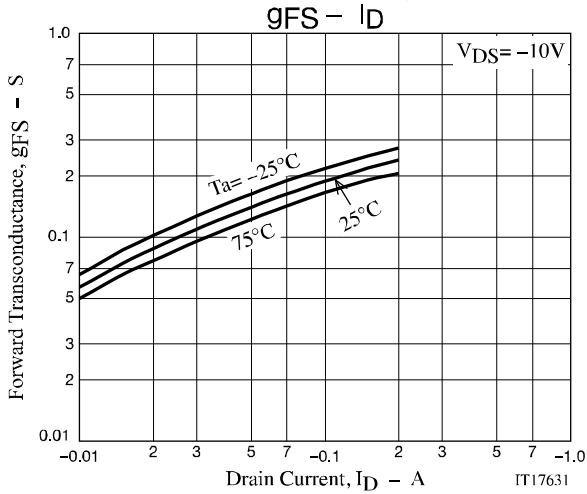
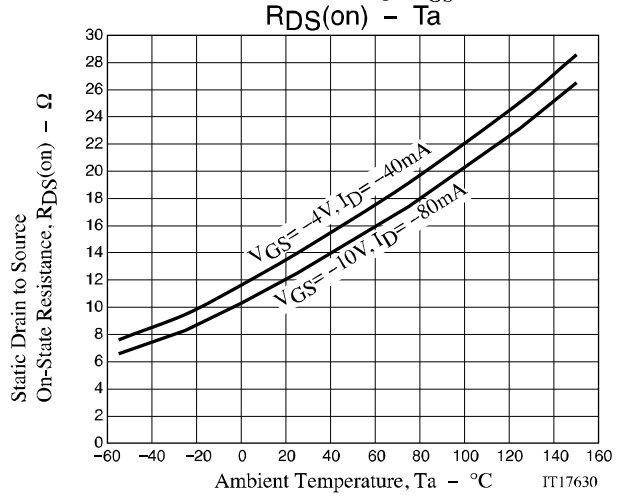
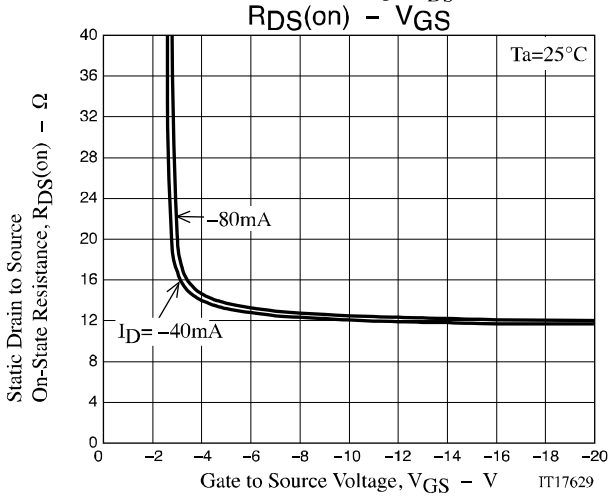
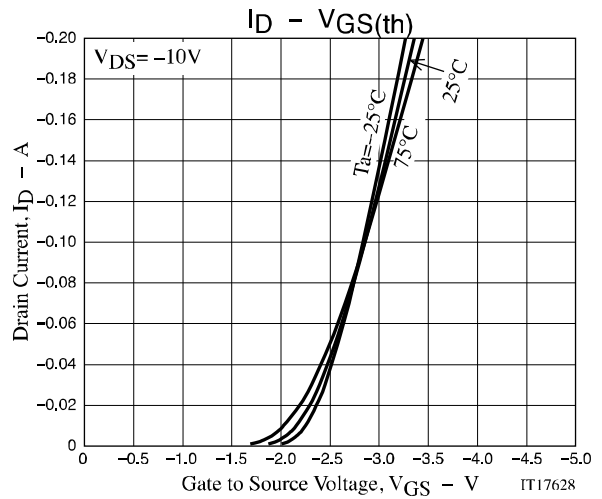
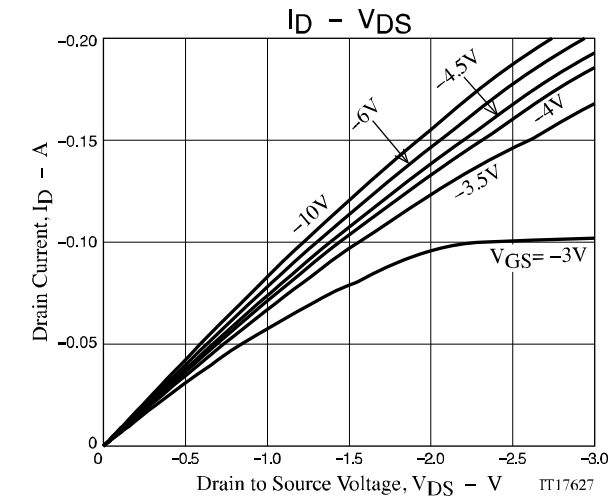
Electrical Connection



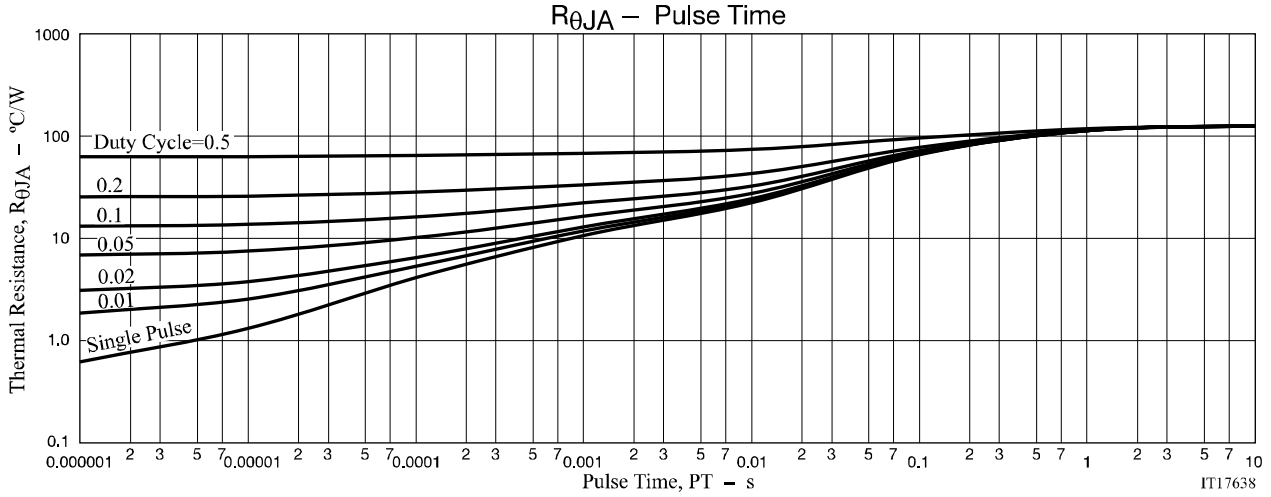
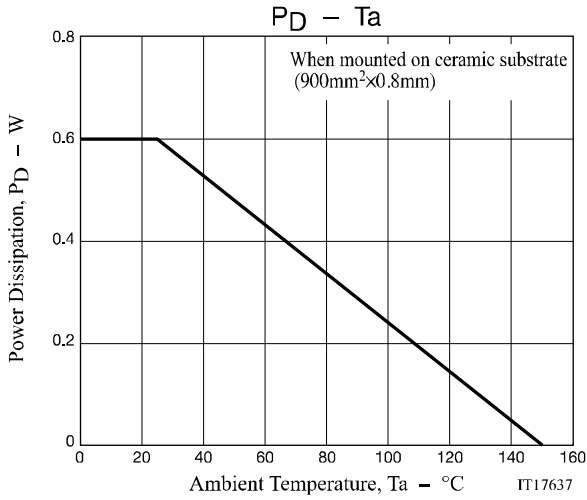
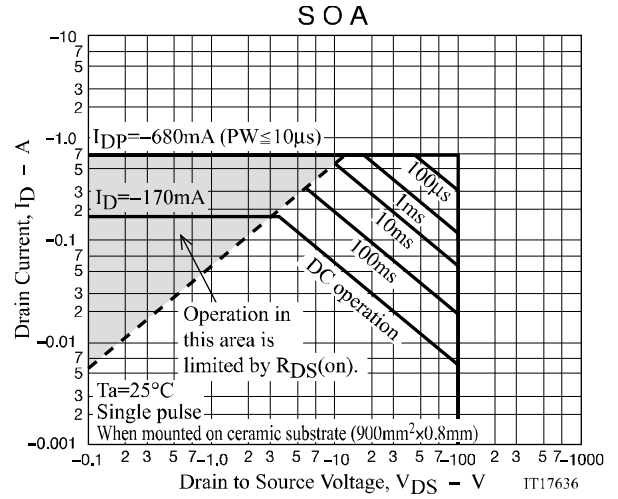
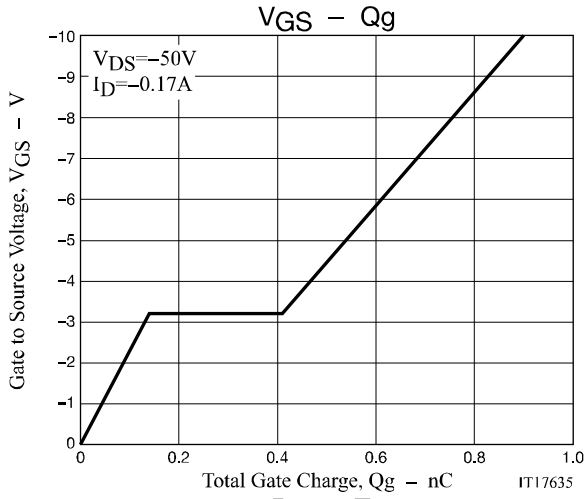
Switching Time Test Circuit



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Package Dimensions

1HP04CH-TL-W

CPH3

CASE 318BA

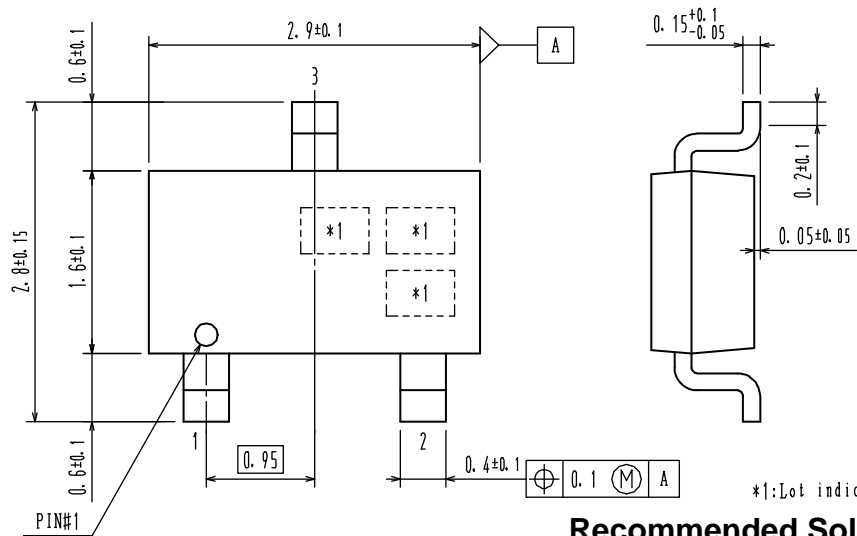
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unit : mm

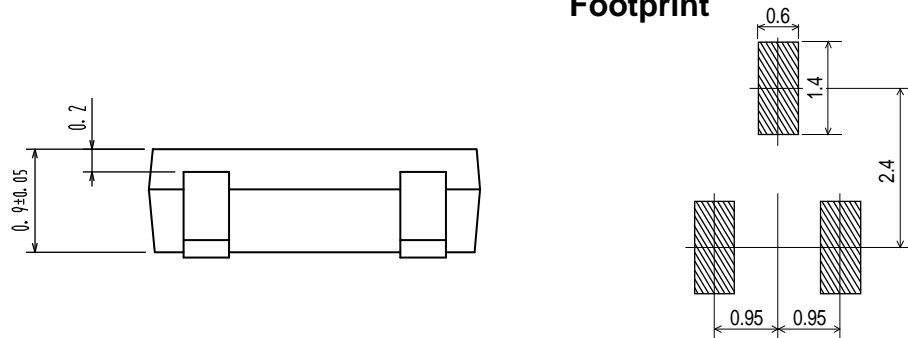
1: Gate

2: Source

3: Drain



Recommended Soldering Footprint



Note on usage : Since the 1HP04CH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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