# **1HN04CH**



http://onsemi.com

# Power MOSFET 100V, 8Ω, 270mA, Single N-Channel

### **Features**

• 4V drive

• Halogen free compliance

#### **Specifications**

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

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	VDSS		100	V
Gate to Source Voltage	VGSS		±20	V
Drain Current (DC)	ID		270	mA
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	1080	mA
Power Dissipation	PD	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	0.6	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

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

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	Po	208	°C/W	
When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	$R_{\theta JA}$	200	C/VV	

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

Parameter	Symbol	Conditions	Value			11.3
			min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	100			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μА
Gate to Source Leakage Current	IGSS	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μА
Gate Threshold Voltage	V <sub>GS</sub> (th)	V <sub>DS</sub> =10V, I <sub>D</sub> =100μA	1.2		2.6	V
Forward Transconductance	gFS .	V <sub>DS</sub> =10V, I <sub>D</sub> =140mA		260		mS
Static Drain to Source On-State Resistance	R <sub>DS</sub> (on)1	I <sub>D</sub> =140mA, V <sub>GS</sub> =10V		6	8	Ω
	R <sub>DS</sub> (on)2	ID=70mA, VGS=4V		6.8	9.8	Ω
Input Capacitance	Ciss	V <sub>DS</sub> =20V, f=1MHz		15		pF
Output Capacitance	Coss			3.1		pF
Reverse Transfer Capacitance	Crss			0.9		pF

Continued on next page.

### **ORDERING INFORMATION**

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

<sup>\*</sup> Machine Model

## **1HN04CH**

Continued from preceding page.

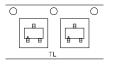
Parameter	Symbol	O and distance	Value			1.1-34
		Conditions	min	typ	max	Unit
Turn-ON Delay Time	t <sub>d</sub> (on)	See specified Test Circuit		10		ns
Rise Time	t <sub>r</sub>			7.4		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)			58		ns
Fall Time	tf			39		ns
Total Gate Charge	Qg	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =270mA		0.9		nC
Gate to Source Charge	Qgs			0.19		nC
Gate to Drain "Miller" Charge	Qgd			0.26		nC
Forward Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> =270mA, V <sub>GS</sub> =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
1HN04CH-TL-W	CPH3, SC-59 SOT-23, TO-236	3,000 pcs. / reel	Pb-Free and Halogen Free

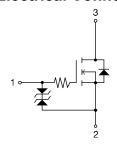
# Packing Type:TL



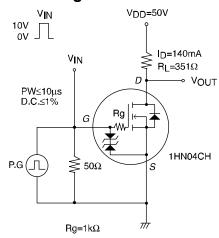
## Marking

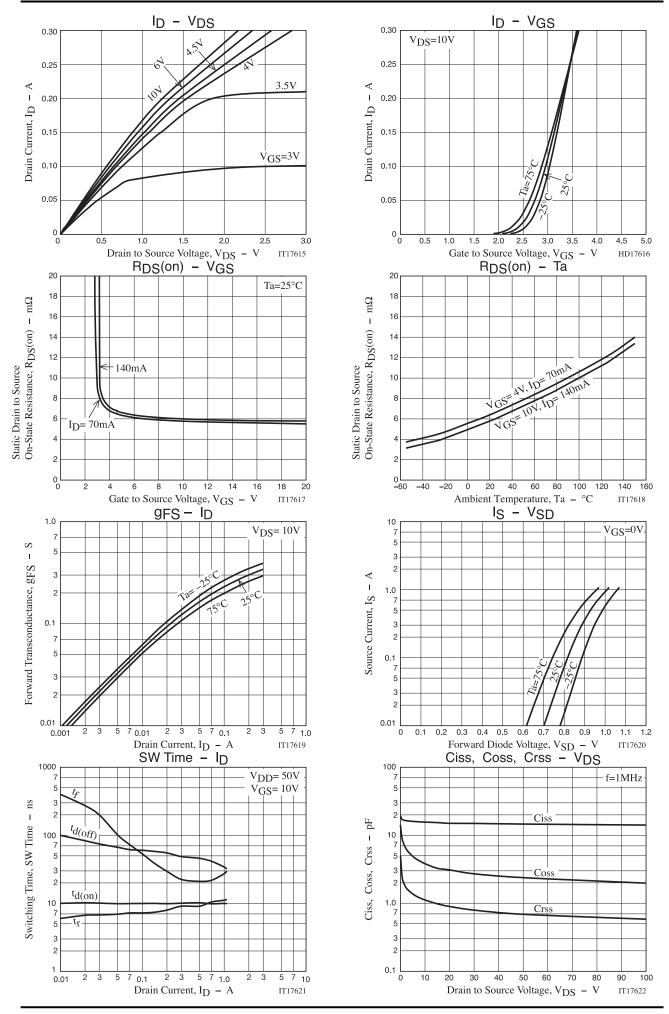


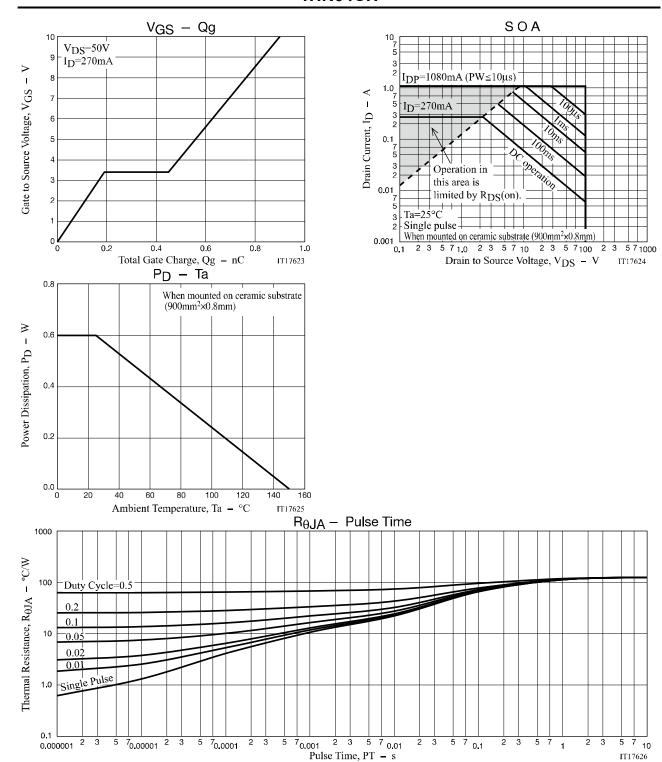
## **Electrical Connection**



## **Switching Time Test Circuit**







## **Package Dimensions**

1HN04CH-TL-W

#### CPH3

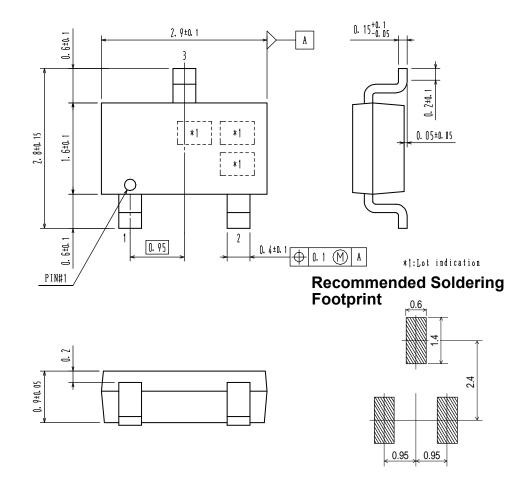
CASE 318BA ISSUE O

unit: mm

1: Gate

2: Source

3: Drain



Note on usage: Since the 1HN04CH is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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