



# CPH3459

## Power MOSFET 200V, 3.7Ω, 0.5A, Single N-Channel

ON Semiconductor®

<http://onsemi.com>

### Features

- On-resistance  $R_{DS(on)1}=2.8\Omega$  (typ)
- 4V drive
- Halogen free compliance
- Input Capacitance  $C_{iss}=90\text{pF}$  (typ)
- Protection Diode in

### Specifications

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

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	$V_{DSS}$		200	V
Gate to Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		0.5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	2	A
Power Dissipation	$P_D$	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.0	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 <sup>2</sup> ×0.8mm)	$R_{\theta JA}$	125	°C/W

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.

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	200			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=200\text{V}$ , $V_{GS}=0\text{V}$			1	μA
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	1.2		2.6	V
Forward Transconductance	$g_{FS}$	$V_{DS}=10\text{V}$ , $I_D=0.25\text{A}$		0.8		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=0.25\text{A}$ , $V_{GS}=10\text{V}$		2.8	3.7	Ω
	$R_{DS(on)2}$	$I_D=0.25\text{A}$ , $V_{GS}=4\text{V}$		2.9	4.1	Ω

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### ORDERING INFORMATION

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

# CPH3459

Continued from preceding page.

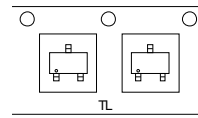
Parameter	Symbol	Conditions	Value			Unit
			min	Typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		90		pF
Output Capacitance	Coss			10		pF
Reverse Transfer Capacitance	Crss			6		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		4		ns
Rise Time	$t_r$			3.5		ns
Turn-OFF Delay Time	$t_{d(off)}$			14		ns
Fall Time	$t_f$			45		ns
Total Gate Charge	Qg	$V_{DS}=100V, V_{GS}=10V, I_D=0.5A$		2.4		nC
Gate to Source Charge	Qgs			0.3		nC
Gate to Drain "Miller" Charge	Qgd			0.8		nC
Forward Diode Voltage	VSD	$I_S=0.5A, V_{GS}=0V$		0.82	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.

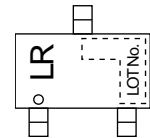
## Ordering & Package Information

Device	Package	Shipping	note
CPH3459-TL-W	CPH3, SC-59 SOT-23, TO-236	3,000 pcs. / reel	Pb-Free and Halogen Free

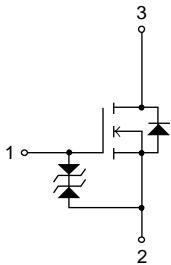
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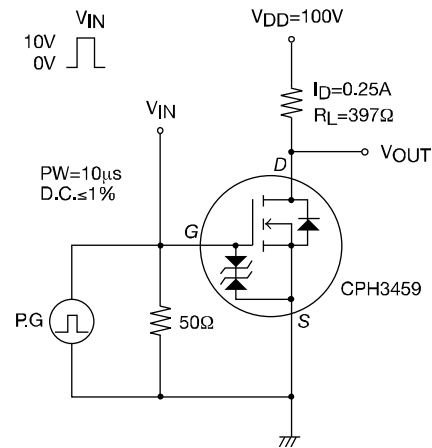
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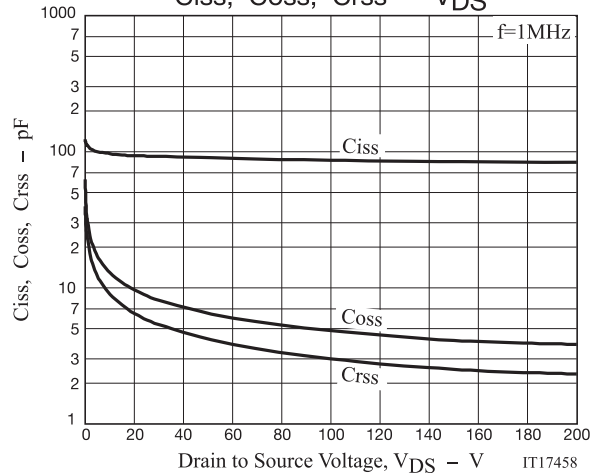
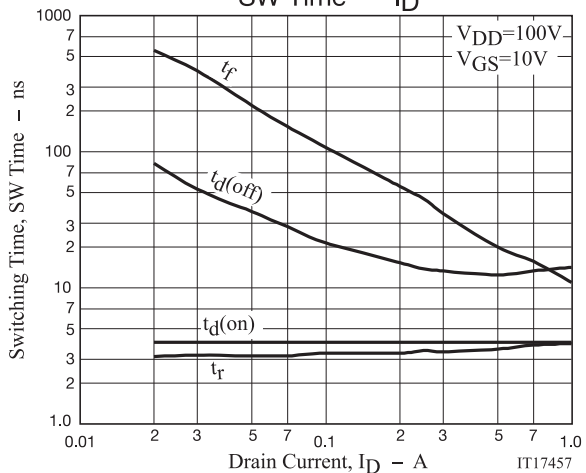
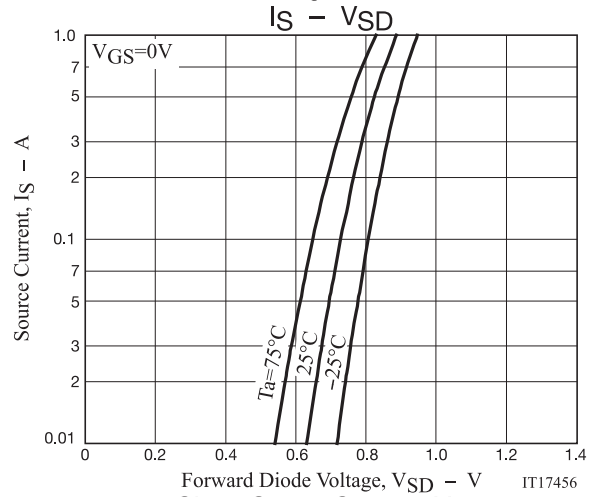
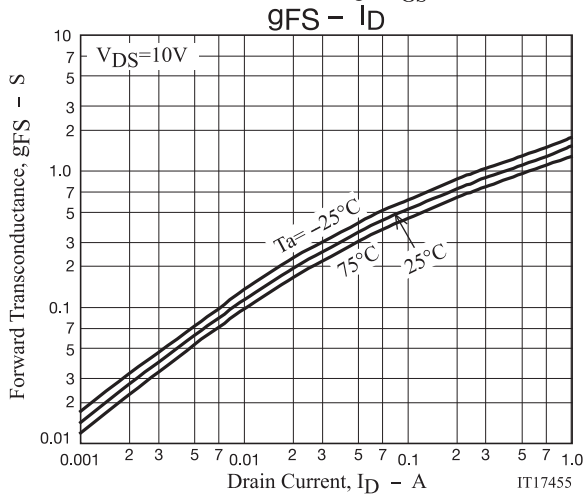
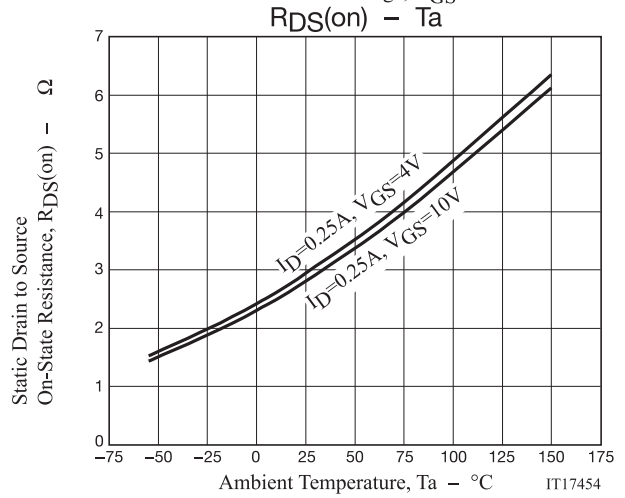
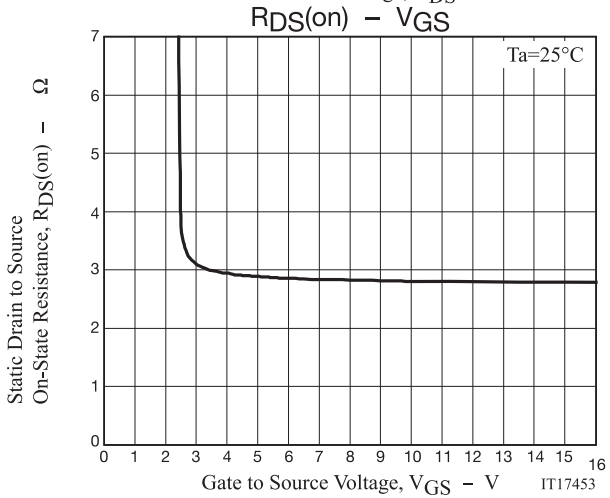
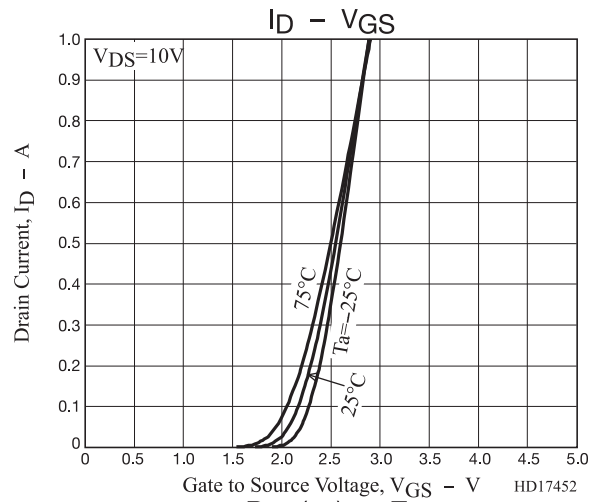
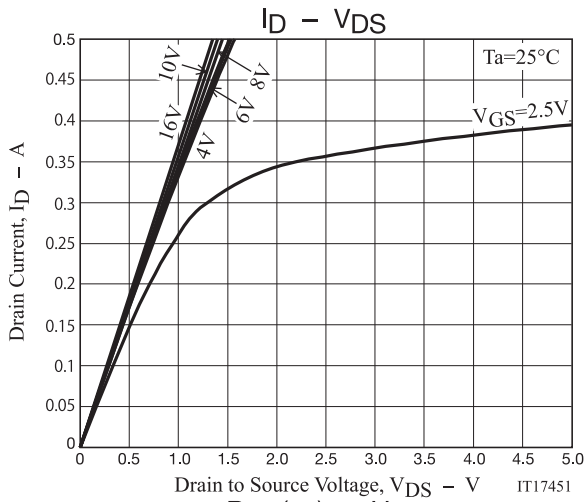


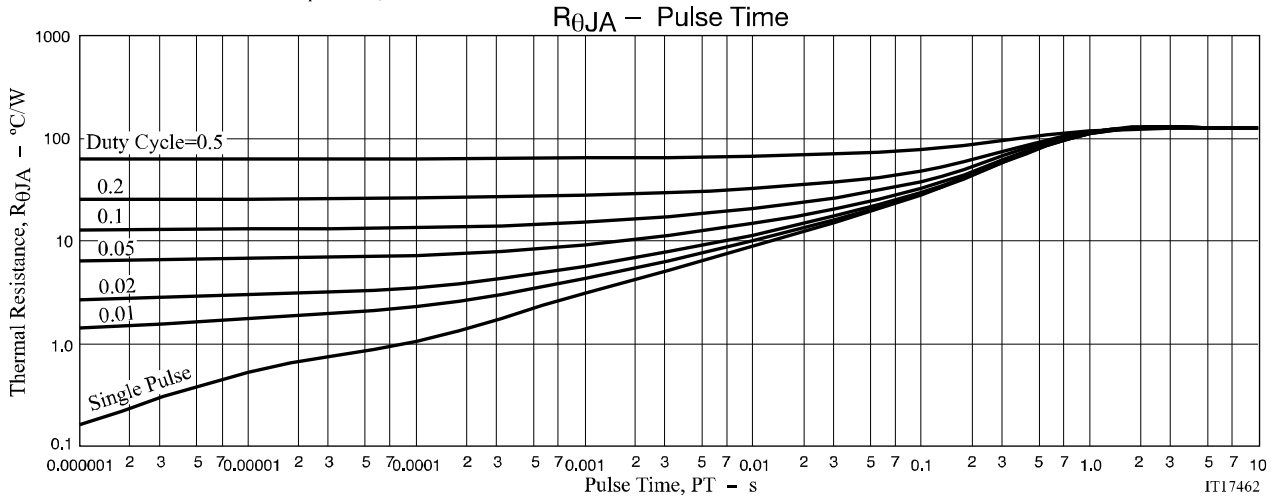
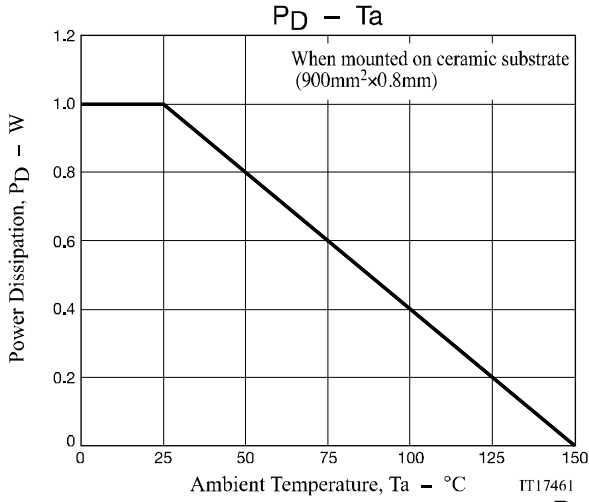
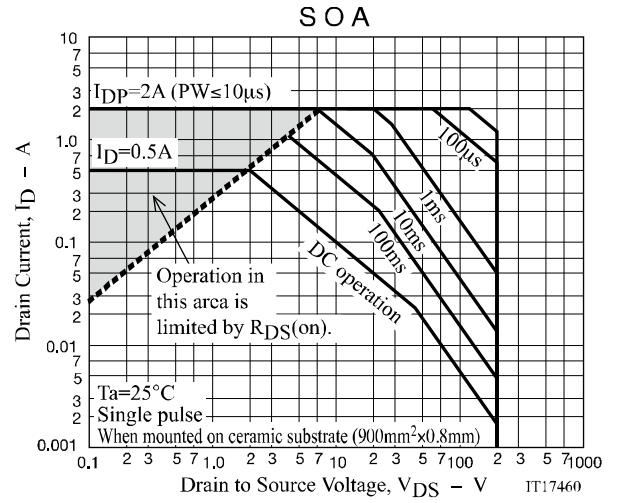
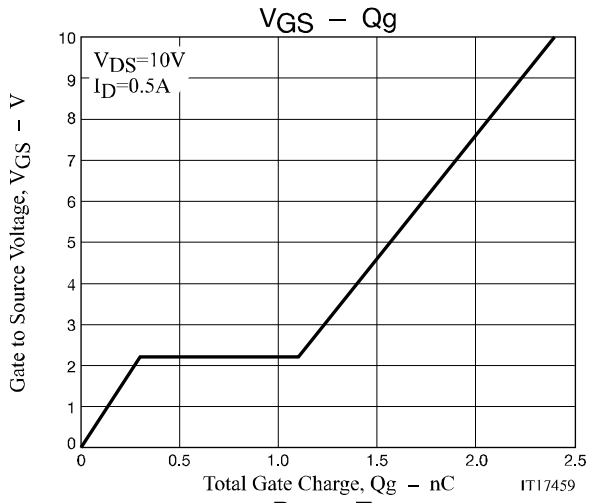
## Electrical Connection



## Switching Time Test Circuit







# CPH3459

## Package Dimensions

CPH3459-TL-W

### CPH3

CASE 318BA

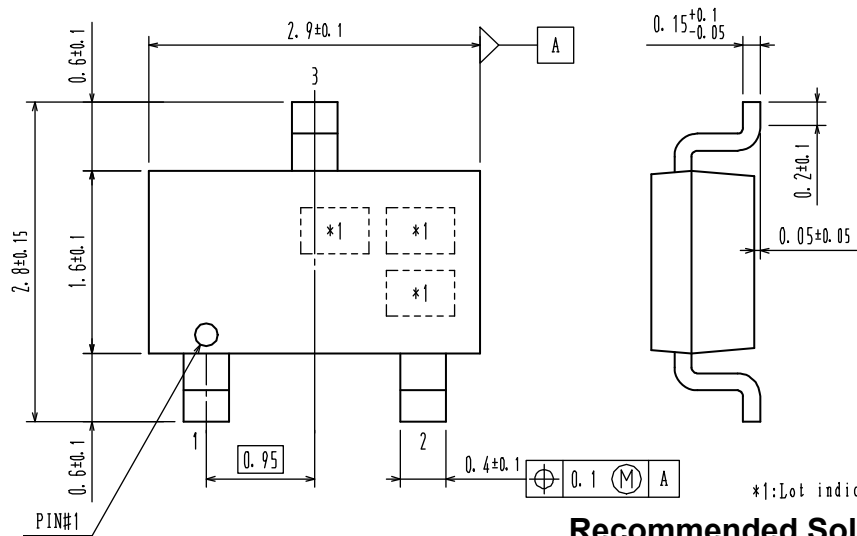
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unit : mm

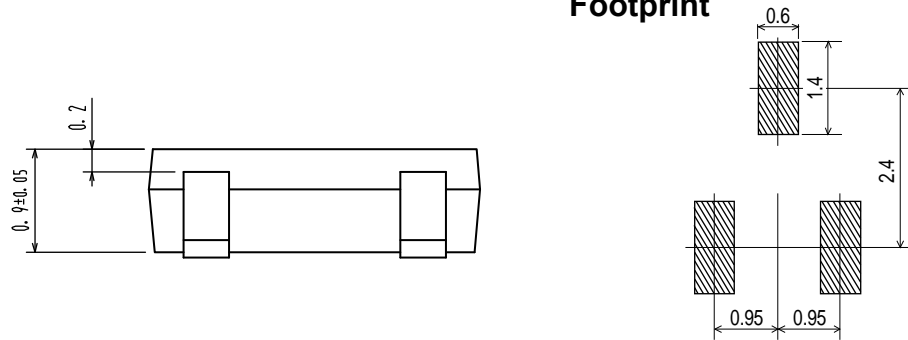
1 : Gate

2 : Source

3 : Drain



### Recommended Soldering Footprint



Note on usage : Since the CPH3459 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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