

CPH3461



ON Semiconductor®

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Power MOSFET 250V, 6.5Ω, 350mA, Single N-Channel

Features

- On-Resistance $R_{DS(on)1}=5\Omega$ (typ)
- 2.5V Drive
- Pb-Free, Halogen Free and RoHS Compliance
- ESD Diode - Protected Gate
- Low Ciss and High Speed Switching

Specifications

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

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	V_{DSS}		250	V
Gate to Source Voltage	V_{GSS}		± 10	V
Drain to Gate Voltage	V_{DGS}		250	V
Gate to Drain Voltage	V_{GDS}		± 10	V
Drain Current (DC)	I_D		350	mA
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	1.4	A
Power Dissipation	P_D	When mounted on ceramic substrate ($900\text{mm}^2 \times 0.8\text{mm}$)	1.0	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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 ($900\text{mm}^2 \times 0.8\text{mm}$)	$R_{\theta JA}$	125	$^\circ\text{C/W}$

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

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	250			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=250\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}$, $I_D=170\text{mA}$		1		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=170\text{mA}$, $V_{GS}=4.5\text{V}$		5	6.5	Ω
	$R_{DS(on)2}$	$I_D=170\text{mA}$, $V_{GS}=2.5\text{V}$		5.1	7.2	Ω

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ORDERING INFORMATION

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

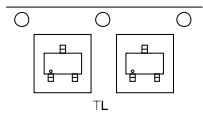
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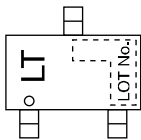
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		140		pF
Output Capacitance	Coss			8		pF
Reverse Transfer Capacitance	Crss			3		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit		7.5		ns
Rise Time	t _r			7.3		ns
Turn-OFF Delay Time	t _{d(off)}			23		ns
Fall Time	t _f			43		ns
Total Gate Charge	Q _g	V _{DS} =125V, V _{GS} =4.5V, I _D =350mA		2.1		nC
Gate to Source Charge	Q _{gs}			0.3		nC
Gate to Drain "Miller" Charge	Q _{gd}			0.7		nC
Forward Diode Voltage	V _{SD}	I _S =350mA, V _{GS} =0V		0.79	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.

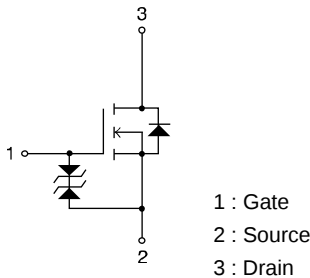
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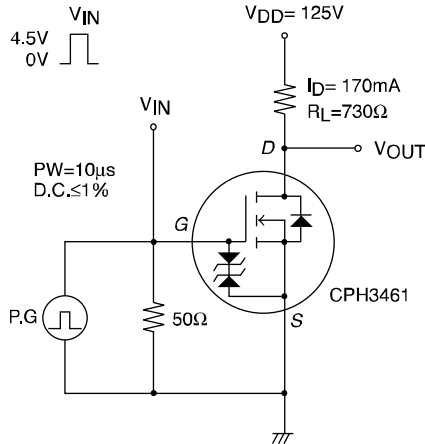
Marking



Electrical Connection



Switching Time Test Circuit



ORDERING INFORMATION

Device	Package	Shipping	Note
CPH3461-TL-H	CPH3,SC-59 SOT-23,TO-236	3,000pcs. / Tape & Reel	Pb-Free and Halogen Free
CPH3461-TL-W			

