



UD4840-H

Power MOSFET

6A, 40V DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

■ DESCRIPTION

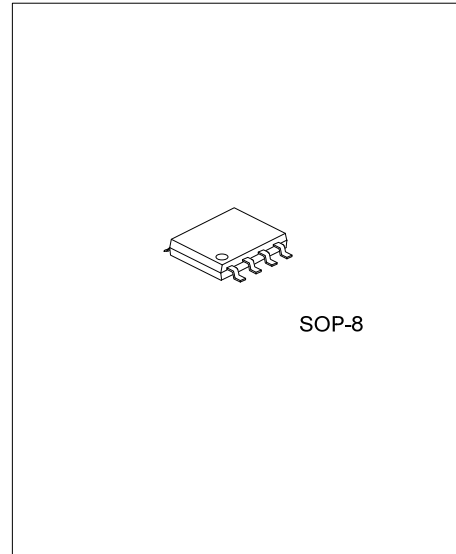
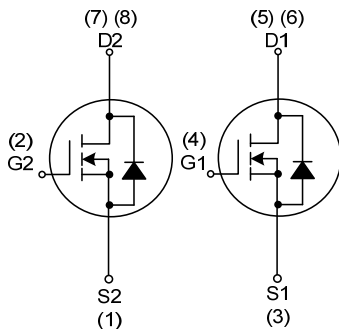
The UTC **UD4840-H** is a dual N-Channel enhancement mode field effect transistor, it uses UTC's advanced technology to provide customers with a minimum on-state resistance and low gate charge, etc.

The UTC **UD4840-H** is suitable for use as a load switch or in PWM applications.

■ FEATURES

- * $R_{DS(ON)} < 32\ m\Omega$ @ $V_{GS}=10V, I_D=6A$
- $R_{DS(ON)} < 42\ m\Omega$ @ $V_{GS}=4.5V, I_D=5A$
- * Low gate charge

■ SYMBOL



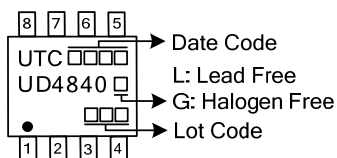
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UD4840L-S08-R	UD4840G-S08-R	SOP-8	S2	G2	S1	G1	D1	D1	D2	D2	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UD4840G-S08-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	40	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current (Note 1)	$T_A=25^\circ\text{C}$	I_D	6	A
	$T_A=70^\circ\text{C}$		5	A
Pulsed Drain Current (Note 2)		I_{DM}	20	A
Single Pulsed Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	5	mJ
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	2	W
	$T_A=70^\circ\text{C}$		1.28	W
Junction Temperature		T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.

3. $L = 0.1\text{mH}$, $I_{AS} = 10\text{A}$, $V_{DD} = 20\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$.

■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 1)	$t \leq 10\text{s}$	θ_{JA}		48	62.5	$^\circ\text{C/W}$
	Steady-State			74	110	$^\circ\text{C/W}$
Junction to Lead (Note 3)	Steady-State	θ_{JC}		35	50	$^\circ\text{C/W}$

Notes: 1. The value of θ_{JA} is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.

2. Repetitive rating, pulse width limited by junction temperature.

3. The θ_{JA} is the sum of the thermal impedance from junction to lead θ_{JL} and lead to ambient.

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =10mA, V _{GS} =0V	40			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =32V, V _{GS} =0V			1	μA
		V _{DS} =32V, V _{GS} =0V, T _J =55°C			5	μA
Gate-Source Leakage Current	Forward	I _{GSS}			+100	nA
	Reverse					
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.5	2.3	3	V
On State Drain Current	I _{D(ON)}	V _{DS} =5V, V _{GS} =10V	20			A
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =6A			32	mΩ
		V _{GS} =10V, I _D =6A, T _J =125°C			48	mΩ
		V _{GS} =4.5V, I _D =5A			42	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =6A		22		S
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1MHz		400		pF
Output Capacitance	C _{OSS}			50		pF
Reverse Transfer Capacitance	C _{RSS}			25		pF
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =0V, f=1MHz		2.7		Ω
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{GS} =4.5V, V _{DS} =32V, I _D =6.0A I _G =1mA		7.2		nC
				30		nC
Gate to Source Charge	Q _{GS}	V _{GS} =10V, V _{DS} =20V, I _D =1.0A I _G =100μA		1.0		nC
Gate to Drain Charge	Q _{GD}			2.0		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DS} =30V, I _D =0.5A R _G =25Ω		115		ns
Rise Time	t _R			190		ns
Turn-OFF Delay Time	t _{D(OFF)}			5		ns
Fall-Time	t _F			19		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				3	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.77	1	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =6A, di/dt=100A/μs		20.5		ns
Body Diode Reverse Recovery Charge	Q _{rr}				14.5	

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