



## UF4848

Preliminary

Power MOSFET

### 3.7A, 150V N-CHANNEL (D-S) MOSFET

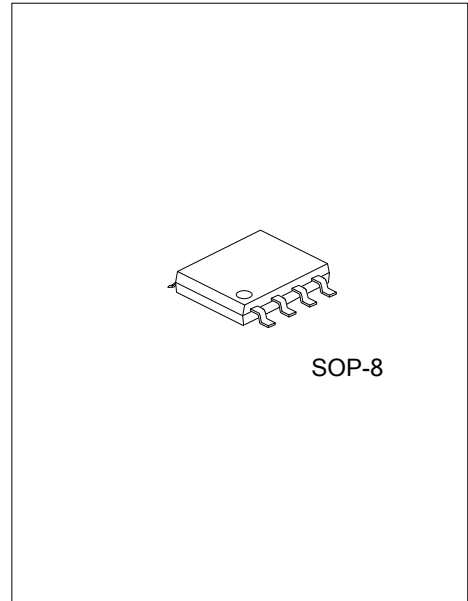
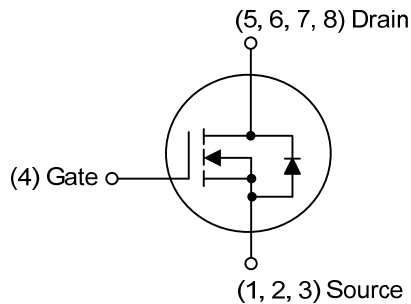
#### DESCRIPTION

The UTC **UF4848** is an N-Channel MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance and low gate charge, etc.

#### FEATURES

- \*  $R_{DS(ON)} < 85 \text{ m}\Omega @ V_{GS}=10\text{V}, I_D=3.7\text{A}$
- \*  $R_{DS(ON)} < 95 \text{ m}\Omega @ V_{GS}=6.0\text{V}, I_D=3.0\text{A}$
- \* Low gate charge

#### SYMBOL



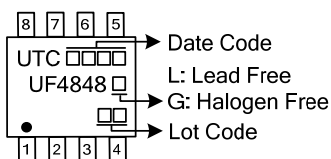
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing		
Lead Free	Halogen Free		1	2	3	4	5	6		7	8
UF4848L-S08-R	UF4848G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UF4848G-S08-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) S08: SOP-8
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

#### MARKING



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

PARAMETER		SYMBOL	10S	STEADY STATE	UNIT
Drain-Source Voltage		$V_{DSS}$	150		V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$		V
Continuous Drain Current $T_J=150^\circ\text{C}$ (Note 1)	$T_A=25^\circ\text{C}$	$I_D$	3.7	2.7	A
	$T_A=70^\circ\text{C}$		3.0	2.1	A
Pulsed Drain Current		$I_{DM}$	25		A
Single Pulse Avalanche Energy (Note 3)		$E_{AS}$	0.5		mJ
Avalanche Current	$L=0.1\text{mH}$	$I_{AS}$	10		A
Continuous Source Current (Diode Conduction) (Note 1)		$I_S$	2.5	1.3	A
Maximum Power Dissipation (Note 1)	$T_A=25^\circ\text{C}$	$P_D$	3.0	1.5	W
	$T_A=70^\circ\text{C}$		1.9	1.0	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  $T_J$ .

3.  $L=55\text{mH}$ ,  $I_{AS}=2.0\text{A}$ ,  $V_{DD}=50\text{V}$ ,  $R_G=25\ \Omega$ , Starting  $T_J = 25^\circ\text{C}$

4.  $I_{SD} \leq 2.4\text{A}$ ,  $di/dt \leq 200\text{A}/\mu\text{s}$ ,  $V_{DD} \leq BV_{DSS}$ , Starting  $T_J = 25^\circ\text{C}$

5. The data tested by surface mounted Pulse test; pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

■ THERMAL RESISTANCES CHARACTERISTICS

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 1)	$t \leq 10\text{s}$	$\theta_{JA}$		35	42	$^\circ\text{C}/\text{W}$
	Steady-State			68	82	$^\circ\text{C}/\text{W}$
Junction-to-Foot (Drain)	Steady-State	$\theta_{JF}$	18	23	$^\circ\text{C}/\text{W}$	

Note: Surface Mounted on 1" x 1" FR4 board.

■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise noted)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>STATIC CHARACTERISTICS</b>							
Zero Gate Voltage Drain Current		$I_{DSS}$	$V_{DS}=120\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
			$V_{DS}=120\text{V}$ , $V_{GS}=0\text{V}$ , $T_J=55^\circ\text{C}$			5	$\mu\text{A}$
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20\text{V}$ , $V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}$ , $V_{DS}=0\text{V}$			-100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	2.0			V
On State Drain Current (Note 1)		$I_{D(ON)}$	$V_{DS} \geq 5\text{V}$ , $V_{GS}=10\text{V}$	25			A
Static Drain-Source On-State Resistance (Note 1)		$R_{DS(ON)}$	$V_{GS}=10\text{V}$ , $I_D=3.5\text{A}$		68	85	m $\Omega$
			$V_{GS}=6.0\text{V}$ , $I_D=3.0\text{A}$		76	95	m $\Omega$
<b>DYNAMIC PARAMETERS (Note 2)</b>							
Total Gate Charge		$Q_G$	$V_{GS}=10\text{V}$ , $V_{DS}=75\text{V}$ , $I_D=3.5\text{A}$		17		nC
Gate to Source Charge		$Q_{GS}$			3.2		nC
Gate to Drain Charge		$Q_{GD}$			6.0		nC
Gate Resistance		$R_G$		0.85			$\Omega$
Turn-ON Delay Time		$t_{D(ON)}$		9.0			ns
Rise Time		$t_R$	$V_{DD}=75\text{V}$ , $R_L=21\Omega$ , $I_D \approx 3.5\text{A}$ , $V_{GEN}=10\text{V}$ , $R_G=6\Omega$		10		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			24		ns
Fall-Time		$t_F$		17			ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Diode Forward Voltage (Note 1)		$V_{SD}$	$I_S=2.5\text{A}$ , $V_{GS}=0\text{V}$		0.75	1.2	V
Reverse Recovery Time		$t_{RR}$	$I_F=2.5\text{A}$ , $dI/dt=100\text{A}/\mu\text{s}$		45		ns

Notes: 1. The data tested by surface mounted Pulse test; pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

2. Guaranteed by design, not subject to production testing.

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