

**UF7476**

Preliminary

POWER MOSFET**N-CHANNEL POWER MOSFET****DESCRIPTION**

The UTC **UF7476** is a N-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed and minimum on-state resistance.

The UTC **UF7476** is suitable for various applications such as power management for Netcom, computing and portable applications, etc.

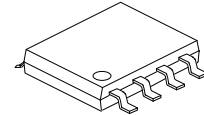
FEATURES

* $R_{DS(ON)} < 8.0 \text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=15\text{A}$

$R_{DS(ON)} < 30 \text{ m}\Omega$ @ $V_{GS}=2.8\text{V}$, $I_D=12\text{A}$

* Ultra-low gate impedance

* High switching speed



SOP-8

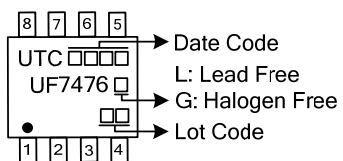
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UF7476L-S08-R	UF7476G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

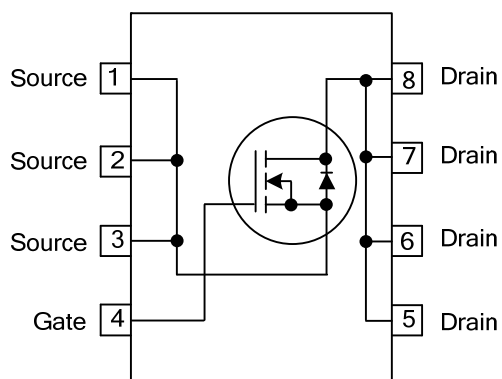
Note: Pin Assignment: G: Gate D: Drain S: Source

UF7476G-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

MARKING



PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATING

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	12	V
Gate-Source Voltage			V _{GSS}	±12	V
Drain Current	Continuous	T _A =25°C	I _D	15	A
		T _A =70°C		12	A
	Pulsed (Note 1)		I _{DM}	120	A
Avalanche Current (Note 1)			I _{AR}	12	A
Avalanche Energy (Note 3)			E _{AS}	14.4	mJ
Power Dissipation (Note 4)		T _A =25°C	P _D	2.5	W
Linear Derating Factor				0.02	W/°C
Junction Temperature			T _J	+150	°C
Storage Temperature Range			T _{STG}	-55 ~ +150	°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.

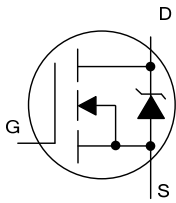
3. Starting $T_J = 25^{\circ}\text{C}$, $L=0.8\text{mH}$, $I_{AS}=6.0\text{A}$, $R_G = 25\Omega$

4. When mounted on 1 inch square copper board.

■ THERMAL RESISTANCE

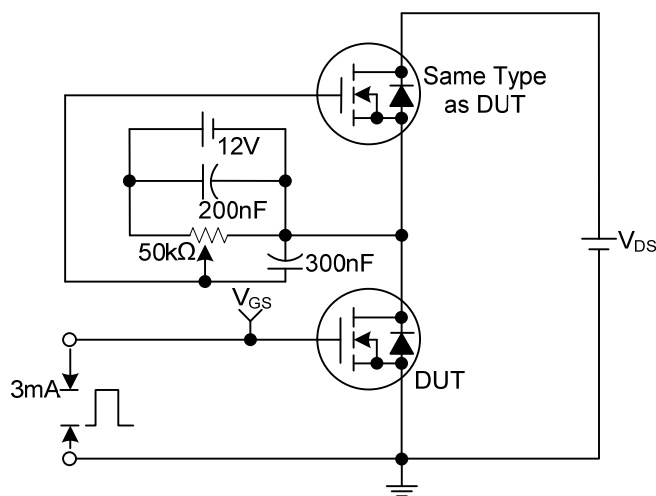
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 4)	θ_{JA}	75	$^{\circ}\text{C/W}$

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

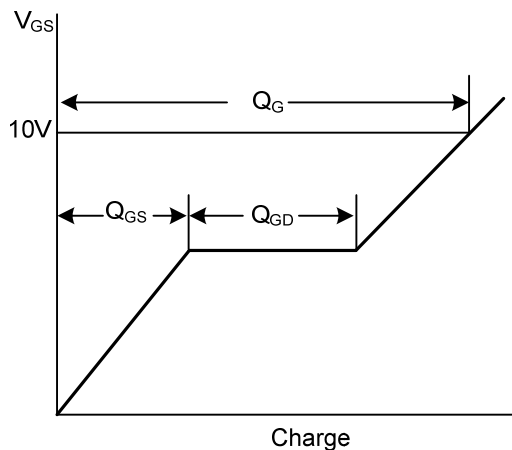
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	12			V
Breakdown Voltage Temperature Coefficient		ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA		0.014		V/°C
Drain-Source Leakage Current		I _{DSS}	V _{DS} =9.6V, V _{GS} =0V			100	μA
			V _{DS} =9.6V, V _{GS} =0V, T _J =125°C			250	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =12V, V _{DS} =0V			200	nA
	Reverse		V _{GS} =-12V, V _{DS} =0V			-200	nA
ON CHARACTERISTICS							
Static Drain-Source On-State Resistance (Note)		R _{DS(ON)}	V _{GS} =4.5V, I _D =15A		6.0	8.0	mΩ
			V _{GS} =2.8V, I _D =12A		12	30	mΩ
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.6		1.9	V
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =6.0V, f=1.0MHz		2550		pF
Output Capacitance		C _{OSS}			2190		pF
Reverse Transfer Capacitance		C _{RSS}			450		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	I _D =12A, V _{DS} =10V, V _{GS} =4.5V		26	40	nC
Gate to Source Charge		Q _{GS}			4.6		nC
Gate to Drain ("Miller") Charge		Q _{GD}			11		nC
Output Gate Charge		Q _{OSS}	V _{DS} =5.0V, V _{GS} =0V		17		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =6.0V, I _D =12A, R _G =1.8Ω V _{GS} =4.5V (Note)		11		ns
Rise Time		t _R			29		ns
Turn-OFF Delay Time		t _{D(OFF)}			19		ns
Fall Time		t _F			8.3		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body Diode Continuous Source Current		I _S	MOSFET symbol showing the integral reverse p-n junction diode. 			2.5	A
Maximum Body Diode Pulsed Current (Note 1)		I _{SM}				120	A
Drain-Source Diode Forward Voltage (Note)		V _{SD}	T _J =25°C, I _S =12A, V _{GS} =0V		0.87	1.2	V
			T _J =125°C, I _S =12A, V _{GS} =0V		0.73		V
Body Diode Reverse Recovery Time		t _{rr}	T _J =25°C, I _F =12A, V _R =12V, di/dt=100A/μs (Note)		55	82	ns
Body Diode Reverse Recovery Charge		Q _{rr}			59	89	nC
Body Diode Reverse Recovery Time		t _{rr}	T _J =125°C, I _F =12A, V _R =12V, di/dt=100A/μs (Note)		54	81	ns
Body Diode Reverse Recovery Charge		Q _{rr}			60	90	nC

Notes: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

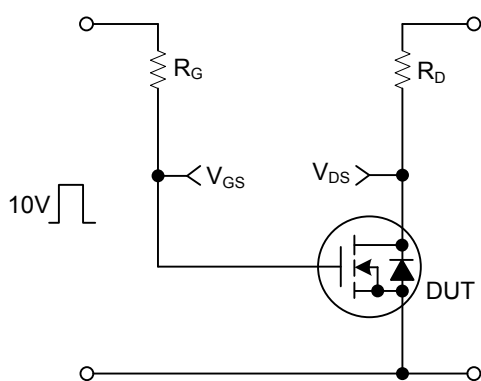
■ TEST CIRCUITS AND WAVEFORMS



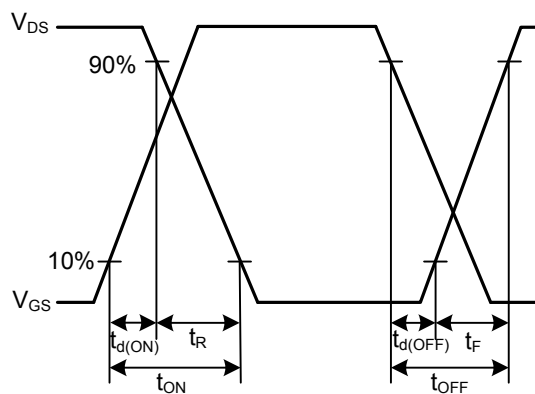
Gate Charge Test Circuit



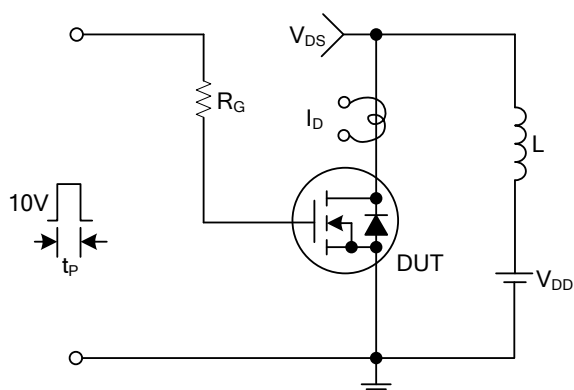
Gate Charge Waveforms



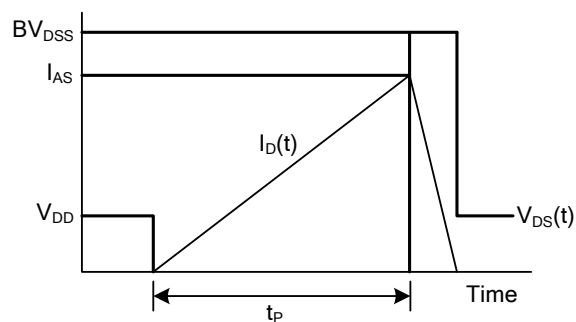
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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