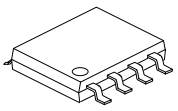
7A, 100V N-CHANNEL FAST SWITCHING MOSFET



SOP-8

■ DESCRIPTION

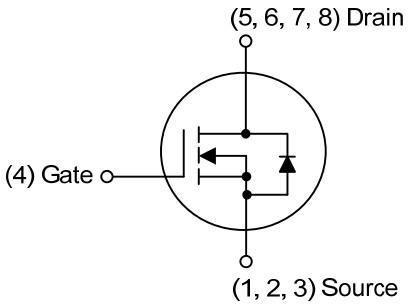
The UTC **UTA10R220H** is an N-Channel fast switching MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance and low gate charge, etc.

The UTC **UTA10R220H** is suitable for secondary synchronous rectifier and LED TV back light.

■ FEATURES

* $R_{DS(ON)}$ < 22 mΩ @ V_{GS}=10V, I_D=7A
* Low gate charge

■ SYMBOL



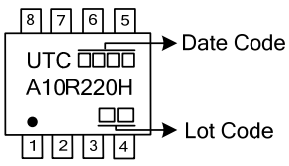
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UTA10R220HG-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTA10R220HG-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



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current, V_{GS} @ 10V (Note 5)	T_A=25°C	I_D	7	A
	T_A=70°C		5	A
Pulsed Drain Current (Note 2)		I_{DM}	35	A
Single Pulse Avalanche Energy (Note 3)		E_{AS}	16	mJ
Avalanche Current		I_{AS}	13	A
Power Dissipation		P_D	2.5	W
Junction Temperature		T_J	-55~+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 T_J.
3. L=55mH, I_{AS}=2.0A, V_{DD}=50V, R_G=25 Ω, Starting T_J = 25°C
4. I_{SD} ≤ 2.4A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C
5. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2 OZ copper.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	t≤10s	θ_{JA}	50	°C/W
	Steady-State		85	°C/W

Note: The data tested by surface mounted on a 1 inch^2 FR-4 board with 2 OZ copper.

■ 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=250μA, V_{GS}=0V	100			V
BV_{DSS} Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C, I_D=1mA		0.089		V/°C
Zero Gate Voltage Drain Current		I_{DSS}	V_{DS}=80V, V_{GS}=0V, T_J=25°C			1	μA
			V_{DS}=80V, V_{GS}=0V, T_J=55°C			5	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
$V_{GS(TH)}$ Temperature Coefficient		$\triangle V_{GS(TH)}$			-4.66		mV/°C
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	V_{GS}=10V, I_D=7A			22	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=15V, f=1MHz		1120		pF
Output Capacitance		C_{OSS}			240		pF
Reverse Transfer Capacitance		C_{RSS}			72		pF
Gate Resistance		R_G	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.9		Ω
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DS}=50V, I_D=1.3A I_G=100μA		160		nC
Gate to Source Charge		Q_{GS}			19		nC
Gate to Drain Charge		Q_{GD}			17.5		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=10V, V_{DD}=30V, R_G=25Ω, I_D=0.5A		152		ns
Rise Time		t_R			75		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			245		ns
Fall-Time		t_F			95		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Diode Forward Voltage (Note 2)		V_{SD}	I_S=1A, V_{GS}=0V, T_J=25°C			1.2	V
Continuous Source Current (Note 1, 3)		I_S	V_G=V_D=0V, Force Current			7	A
Pulsed Source Current (Note 2, 3)		I_{SM}				35	A
Body Diode Reverse Recovery Time		t_{RR}	I_F=7A, dI/dt=100A/μs, T_J=25°C		44		nS
Body Diode Reverse Recovery Charge		Q_{RR}			25		nC

Notes: 1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2 OZ copper.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. The power dissipation is limited by 150°C junction temperature.