



UTA10R220H

Preliminary

Power MOSFET

7A, 100V N-CHANNEL FAST SWITCHING MOSFET

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.

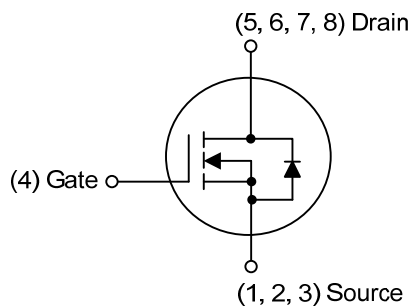
The UTC **UTA10R220H** is suitable for secondary synchronous rectifier and LED TV back light.

FEATURES

* $R_{DS(ON)} < 22\text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=7\text{A}$

* Low gate charge

SYMBOL



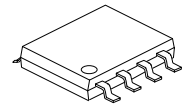
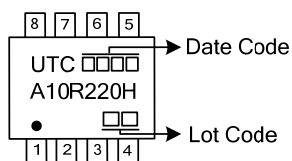
ORDERING INFORMATION

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



SOP-8

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

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	V_{DSS}	100	V	
Gate-Source Voltage	V_{GSS}	± 20	V	
Continuous Drain Current, $V_{GS} @ 10\text{V}$ (Note 5)	I_D	$T_A=25^\circ\text{C}$	7	A
		$T_A=70^\circ\text{C}$	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	$^\circ\text{C}$	
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 on a 1 inch² FR-4 board with 2 OZ copper.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Ambient (Note)	θ_{JA}	$t \leq 10\text{s}$	50	$^\circ\text{C}/\text{W}$
		Steady-State	85	$^\circ\text{C}/\text{W}$

Note: The data tested by surface mounted on a 1 inch² 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	ΔBV _{DSS} /ΔT _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	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	ΔV _{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
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 inch² 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.

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