

**UTT60N03H-H**

Preliminary

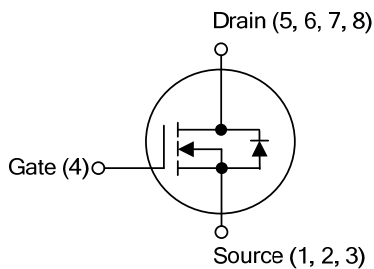
Power MOSFET**60A, 30V N-CHANNEL
POWER MOSFET****DESCRIPTION**

The UTC **UTT60N03H-H** is a N-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed, low C_{RSS} and low gate charge.

The UTC **UTT60N03H-H** is suitable for high power density DC/DC and embedded DC/DC applications.

FEATURES

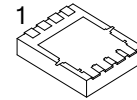
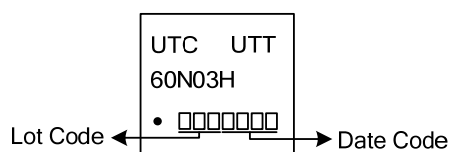
- * $R_{DS(ON)} < 5.5m\Omega$ @ $V_{GS}=10V$, $I_D=10A$
- $R_{DS(ON)} < 8.5m\Omega$ @ $V_{GS}=4.5$, $I_D=8A$
- * High switching speed
- * Low C_{RSS}
- * Low gate change

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT60N03HL-K08-5060-R	UTT60N03HG-K08-5060-R	DFN5060-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTT60N03HG-K08-5060-R 		(1) R: Tape Reel (2) K08-5060: DFN5060-8 (3) G: Halogen Free and Lead Free, L: Lead Free
---------------------------	--	--

MARKING

DFN5060-8

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

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	30	V
Gate-Source Voltage			V _{GSS}	+20, -16	V
Drain Current (T _J =150°C)	Continuous	T _C =25°C	I _D	60 (Note 6)	A
	Pulsed (t=300us)		I _{DM}	80	A
Continuous Source-Drain Diode Current		T _C =25°C	I _S	14.1 (Note 6)	A
		T _A =25°C		3.2 (Note 2, 3)	
Avalanche Current (L=0.1mH)			I _{AR}	15	A
Single Pulsed Avalanche Energy (L=0.1mH)			E _{AS}	11.25	mJ
Power Dissipation		T _C =25°C	P _D	31.2	W
Junction Temperature			T _J	-55 ~ +150	°C
Storage Temperature Range			T _{STG}	-55 ~ +150	°C
Soldering Recommendations (Peak Temperature) (Note 4)				260	°C

Note: 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.

■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 2, 5)	t≤10s	θ _{JA}	34	°C/W
Junction to Case (Drain)	Steady State	θ _{JC}	4	°C/W

Notes: 1. Based on T_C=25°C

2. Surface mounted on 1"x1" FR4 board.

3. t=10s

4. Rework conditions: manual soldering with a soldering iron is not recommended for leadless components.

5. Maximum under steady state conditions is 70°C/W

6. Package limited

■ 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	30			V
V _{DS} Temperature Coefficient		ΔV _{DS} /T _J	I _D =250uA		20		mV/°C
V _{GS(TH)} Temperature Coefficient		ΔV _{GS(TH)} /T _J			-4.6		
Drain-Source Leakage Current		I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
			V _{DS} =30V, V _{GS} =0V, T _J =55°C			10	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-16V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.1		2.2	V
Static Drain-Source On-State Resistance (Note 1)		R _{DS(ON)}	V _{GS} =10V, I _D =10A			5.5	mΩ
			V _{GS} =4.5V, I _D =8A			8.5	
On State Drain Current		I _{D(ON)}	V _{DS} ≥5V, V _{GS} =10V	30			A
DYNAMIC PARAMETERS (Note 2)							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =15V, f=1MHz		1450		pF
Output Capacitance		C _{OSS}			445		pF
Reverse Transfer Capacitance		C _{RSS}			38		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{GS} =10V, V _{DS} =15V, I _D =10A		19.4	29	nC
			V _{GS} =4.5V, V _{DS} =15V, I _D =10A		9.4	14	nC
Gate to Source Charge		Q _{GS}			4		
Gate to Drain Charge		Q _{GD}			1.8		nC
Gate Resistance		R _G	f=1MHz	0.4	1.65	3.3	Ω
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =15V, I _D ≈10A, R _L =1.5Ω, V _{GEN} =10V, R _G =1Ω		9	18	ns
Rise Time		t _R			8	16	ns
Turn-OFF Delay Time		t _{D(OFF)}			18	36	ns
Fall-Time		t _F			8	16	ns
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =15V, I _D ≈10A, R _L =1.5Ω, V _{GEN} =4.5V, R _G =1Ω		15	30	ns
Rise Time		t _R			12	24	ns
Turn-OFF Delay Time		t _{D(OFF)}			18	36	ns
Fall-Time		t _F			9	18	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S	T _C =25°C			14.1	A
Maximum Body-Diode Pulsed Current (Note 1)		I _{SM}				80	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =3A		0.76	1.1	V
Body Diode Reverse Recovery Time		t _{rr}	I _F =10A, dI/dt=100A/μs, T _J =25°C		24	48	ns
Body Diode Reverse Recovery Charge		Q _{rr}			14	28	nC
Reverse Recovery Fall Time		t _a			12		ns
Reverse Recovery Rise Time		t _b			12		ns

Notes: 1. Pulse test; pulse width ≤30μs, duty cycle ≤2%

2. Guaranteed by design, not subject to production testing

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.