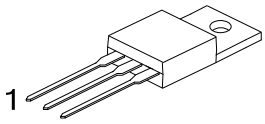
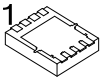
UTT80N07

Power MOSFET

70V, 80A N-CHANNEL POWER MOSFET



TO-220



DFN5060-8

■ DESCRIPTION

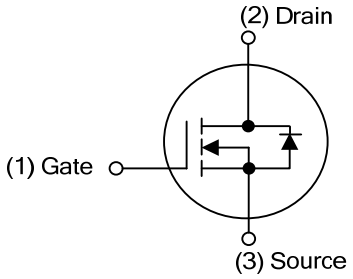
The UTC **UTT80N07** is a N-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with low $R_{DS(ON)}$ characteristic by high cell density trench technology.

The UTC **UTT80N07** is suitable for high efficiency synchronous rectification in SMPS, UPS, hard switched and high frequency circuits.

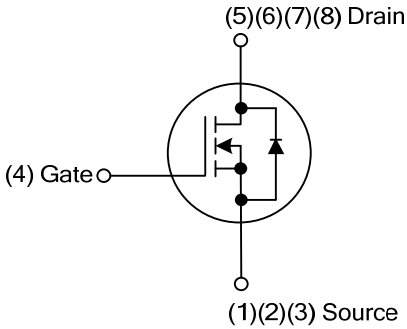
■ FEATURES

* $R_{DS(ON)}$ < 11 mΩ @ V_{GS}=10V, I_D=40A
* Trench FET Power MOSFETS Technology

■ SYMBOL



TO-220



DFN5060-8

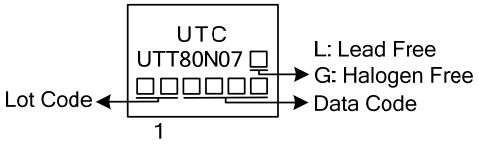
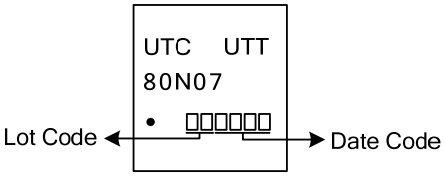
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT80N07L-TA3-T	UTT80N07G-TA3-T	TO-220	G	D	S	-	-	-	-	-	Tube
UTT80N07L-K08-5060-R	UTT80N07G-K08-5060-R	DFN5060-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTT80N07G-TA3-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, K08-5060: DFN5060-8 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

TO-220	DFN5060-8
	

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	70	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current		I_D	80	A
Pulsed Drain Current		I_{DM}	320	A
Avalanche Energy, Single Pulse		E_{AS}	288	mJ
Power Dissipation	TO-220	P_D	130	W
	DFN5060-8		35	W
Junction Temperature		T_J	+150	°C
Storage Temperature		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. L=0.09mH, I_{AS}=80A, V_{DD}=25V, R_G=20Ω, Starting T_J =25°C.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	°C/W
	DFN5060-8		35 (Note)	°C/W
Junction to Case	TO-220	θ_{JC}	0.96	°C/W
	DFN5060-8		3.57 (Note)	°C/W

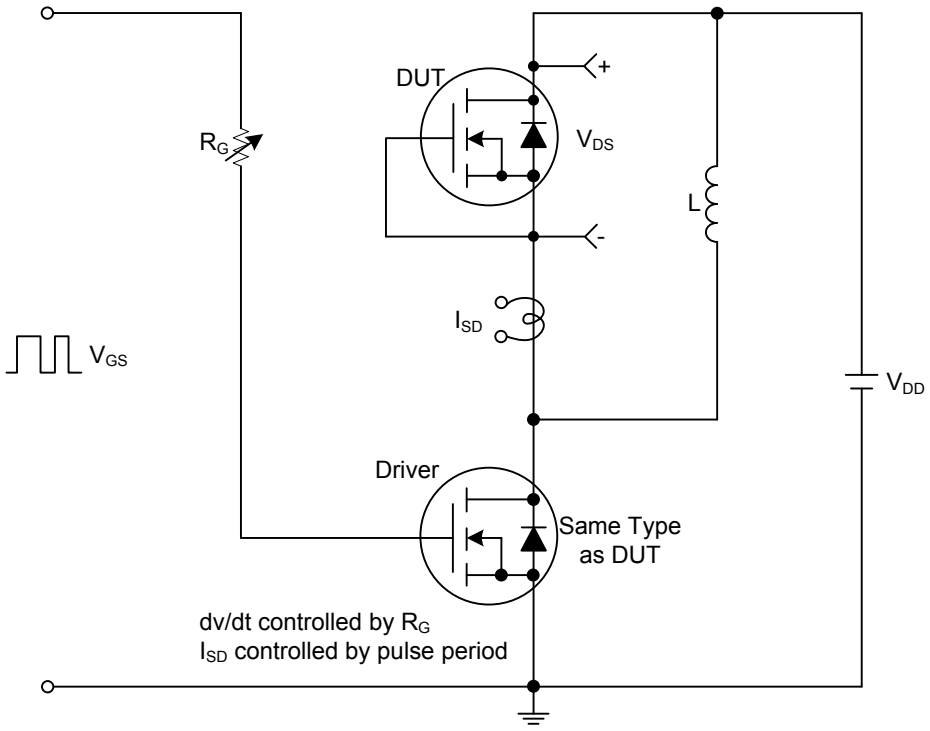
Note: The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

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

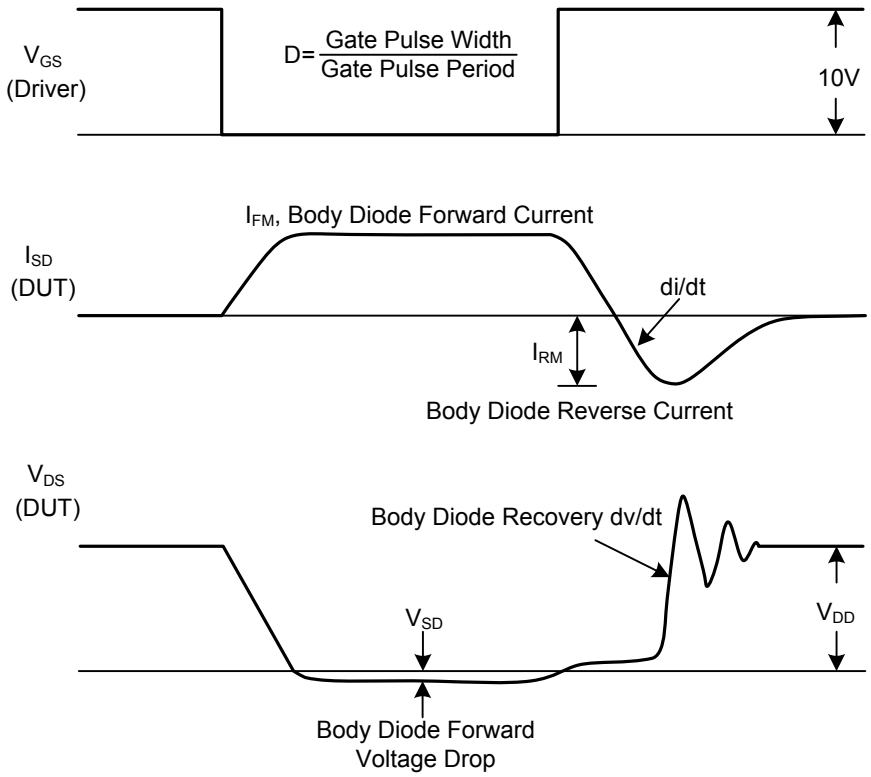
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	70			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=70V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=40A			11	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		5930		pF
Output Capacitance	C_{OSS}			410		pF
Reverse Transfer Capacitance	C_{RSS}			290		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note 1)	Q_G	V_{DS}=56V, V_{GS}=10V, I_D=20A, I_G=100μA (Note 1, 2)		96		nC
Gate to Drain Charge	Q_{GD}			22		nC
Gate to Source Charge	Q_{GS}			11		nC
Turn-ON Delay Time (Note 1)	$t_{D(ON)}$	V_{DS}=35V, V_{GS}=10V, I_D=20A, R_G=25Ω (Note 1, 2)		60		ns
Rise Time	t_R			88		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			172		ns
Fall-Time	t_F			140		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				80	A
Maximum Body-Diode Pulsed Current	I_{SM}				320	A
Drain-Source Diode Forward Voltage (Note 1)	V_{SD}	I_{SD}=80A			1.2	V
Reverse Recovery Time (Note 1)	t_{rr}	I_S=30A, V_{GS}=0V, dI_F/dt =100A/μs		71		nS
Reverse Recovery Charge	Q_{rr}			175		nC

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS



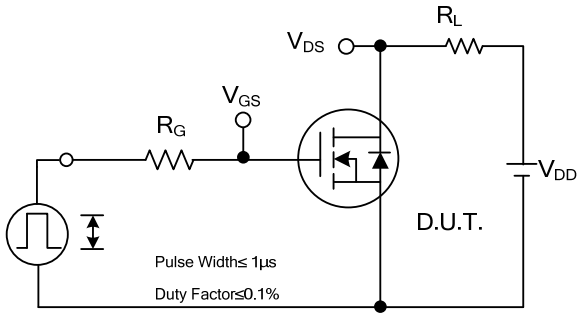
Peak Diode Recovery dv/dt Test Circuit



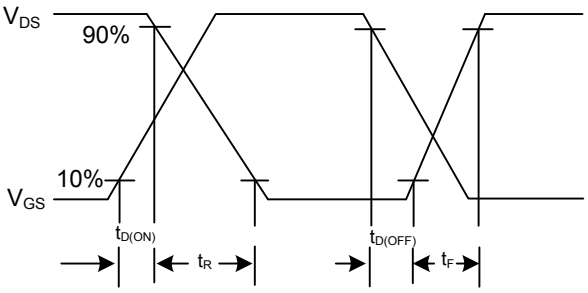
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

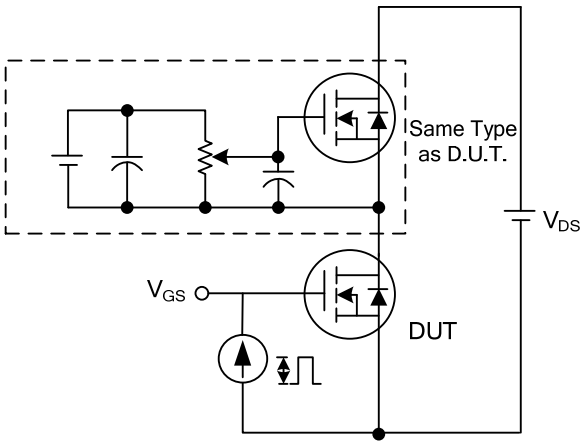
■ TEST CIRCUITS AND WAVEFORMS



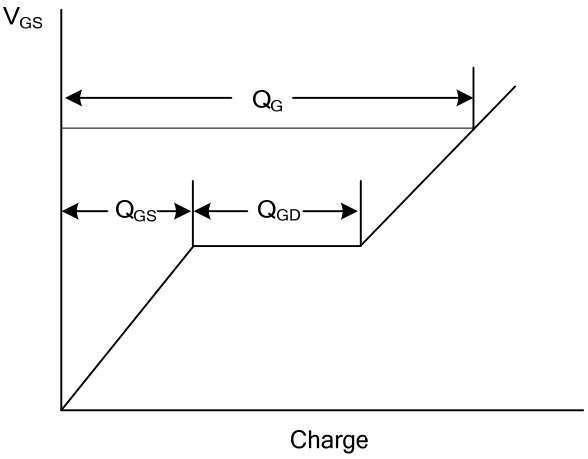
Switching Test Circuit



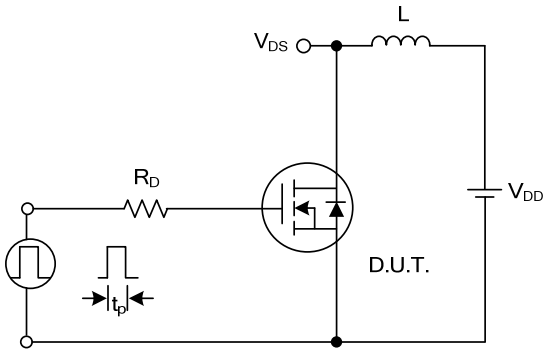
Switching Waveforms



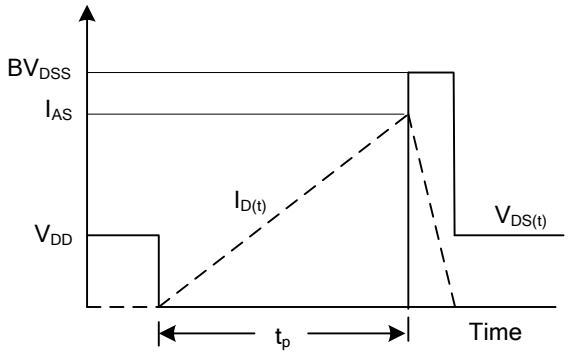
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

■ TYPICAL CHARACTERISTICS