

**UTT80N07****Power MOSFET****70V, 80A N-CHANNEL
POWER MOSFET****DESCRIPTION**

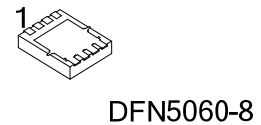
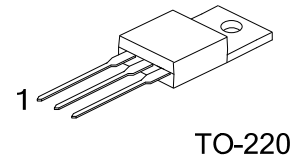
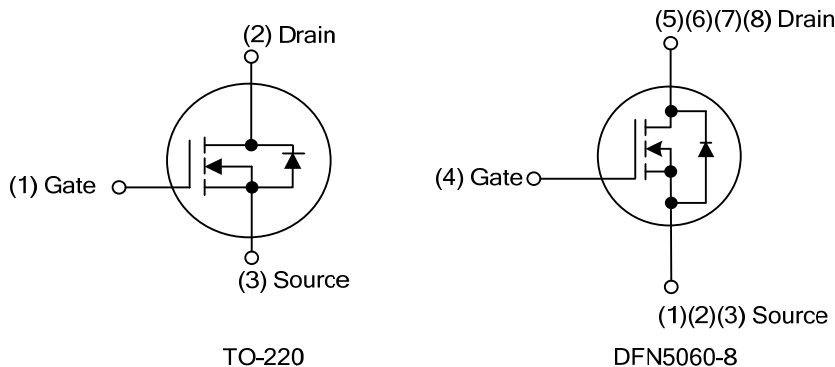
The UTC **UTT80N07** is a N-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with low $R_{DS(ON)}$ characteristic by high cell density trench technology.

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

FEATURES

* $R_{DS(ON)} < 11\text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=40\text{A}$

* Trench FET Power MOSFETS Technology

**SYMBOL****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
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MARKING

TO-220	DFN5060-8
UTC UTT80N07 □□□□□□ Lot Code ← 1 → Data Code L: Lead Free G: Halogen Free	UTC UTT 80N07 • □□□□□□ Lot Code ← → Date Code

■ 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 inch² FR-4 board with 2OZ copper.

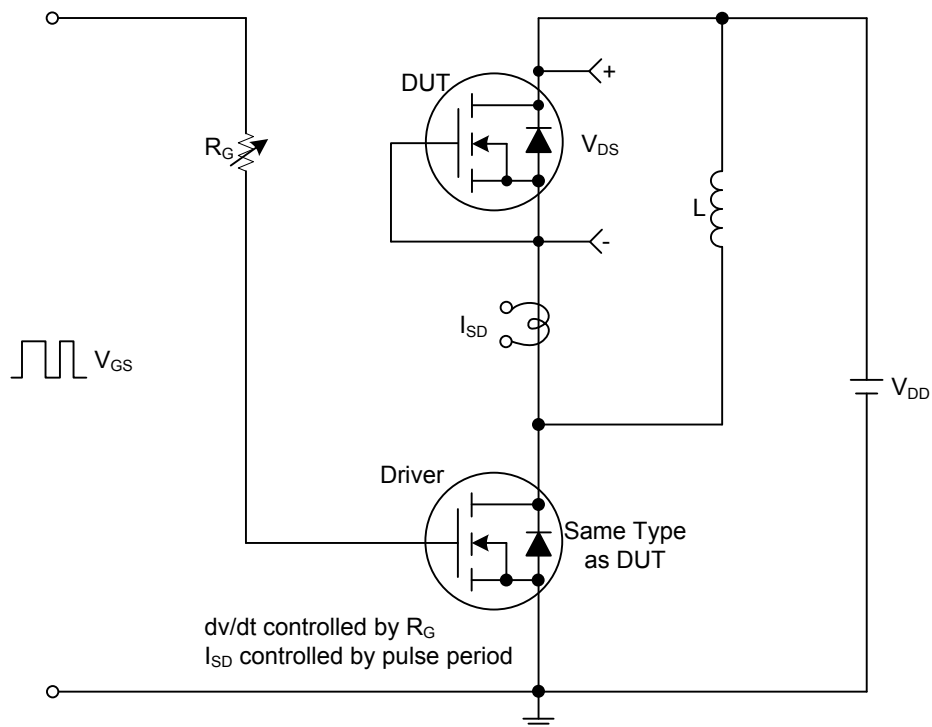
■ **ELECTRICAL CHARACTERISTICS** ($T_J = 25^\circ\text{C}$, unless otherwise specified)

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,		71		nS
Reverse Recovery Charge	Q _{rr}	dl _F /dt =100A/μs		175		nC

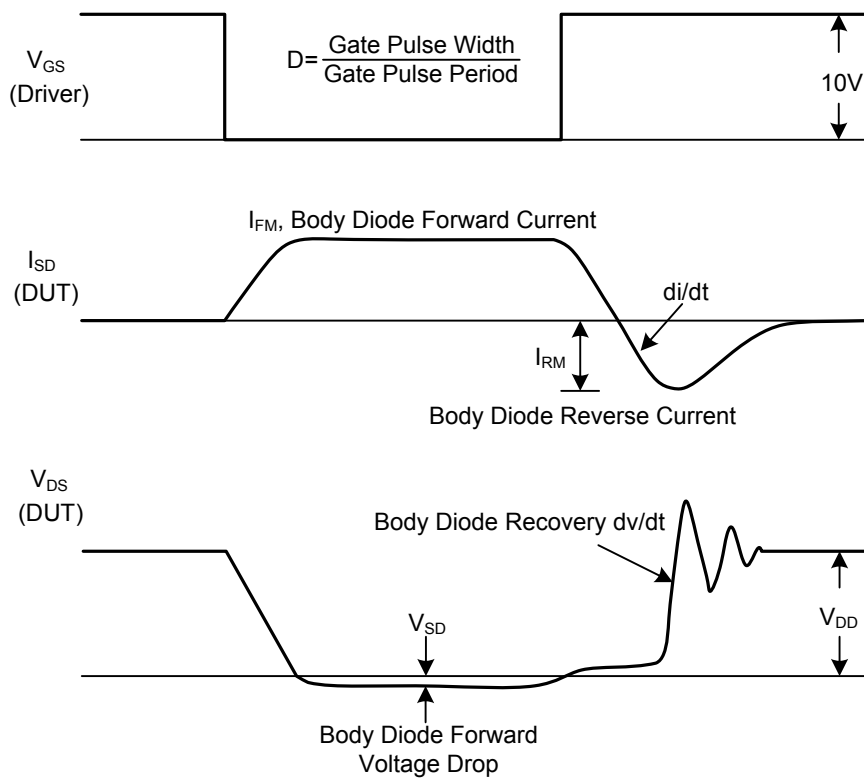
Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS



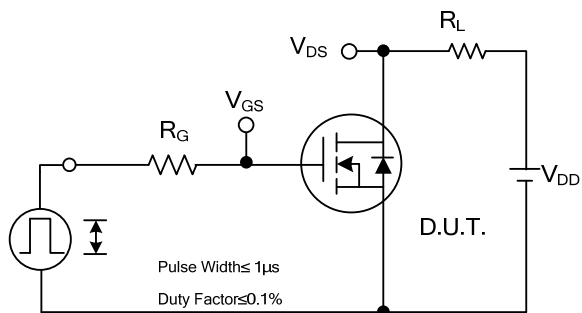
Peak Diode Recovery dv/dt Test Circuit



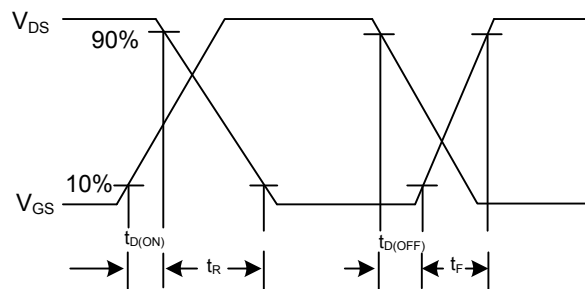
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

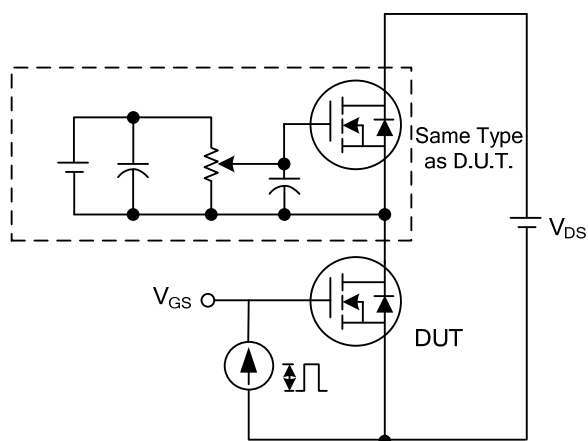
■ TEST CIRCUITS AND WAVEFORMS



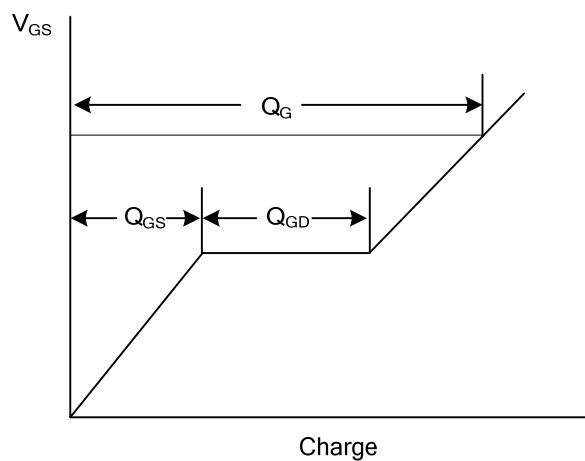
Switching Test Circuit



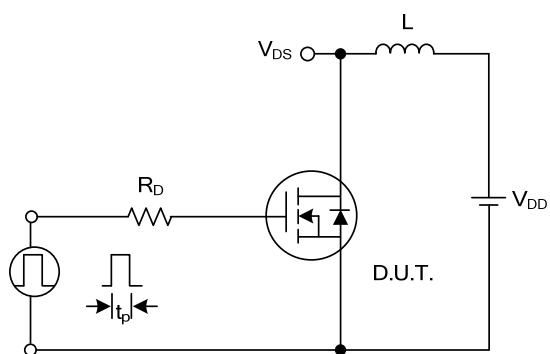
Switching Waveforms



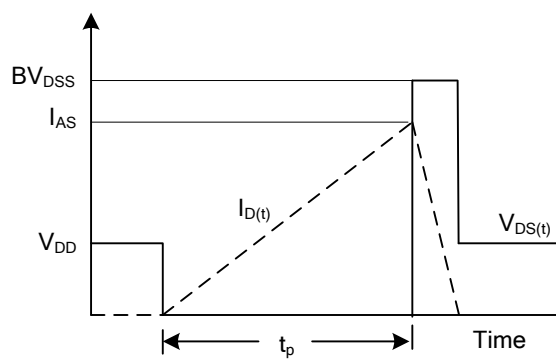
Gate Charge Test Circuit



Gate Charge Waveform

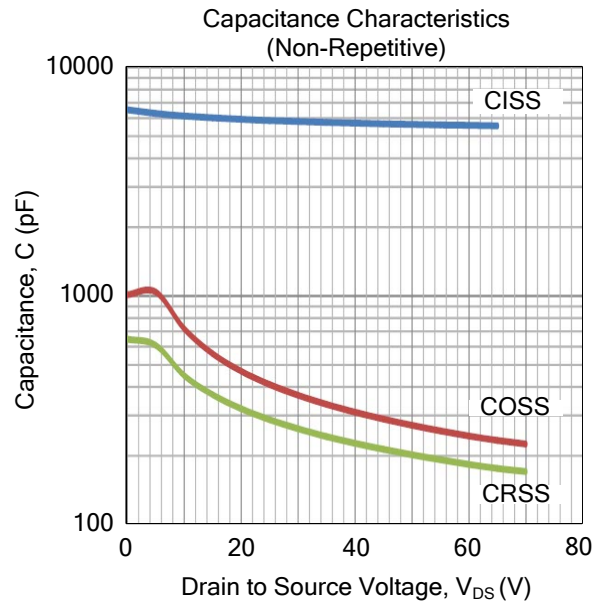
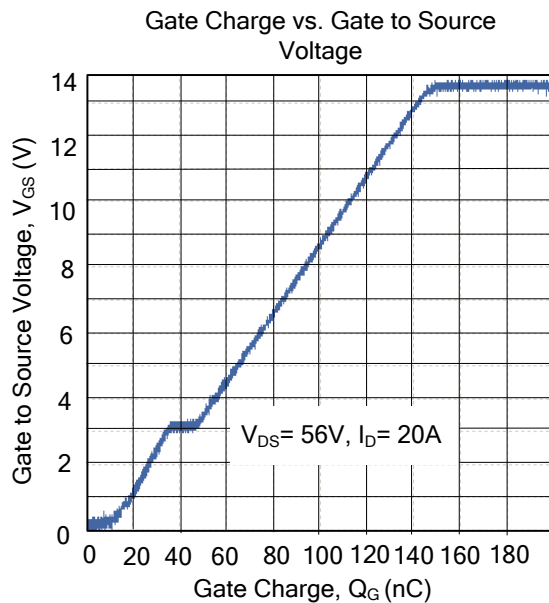


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

■ TYPICAL CHARACTERISTICS



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