



UTT80N06

Power MOSFET

60V, 80A N-CHANNEL POWER MOSFET

DESCRIPTION

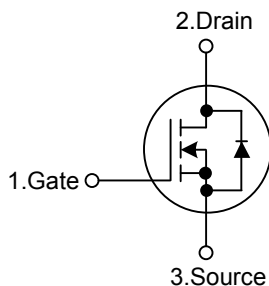
The UTC **UTT80N06** is a N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance and high switching speed. It can also withstand high energy pluse in the avalanche and commutation mode.

The UTC **UTT80N06** is suitable for active power factor correction, high efficient switched mode power supplies and electronic lamp ballast based on half bridge topology, etc.

FEATURES

- * $R_{DS(ON)} < 10m\Omega @ V_{GS}=10V, I_D=40A$
- * High switching speed
- * Improved dv/dt capability

SYMBOL

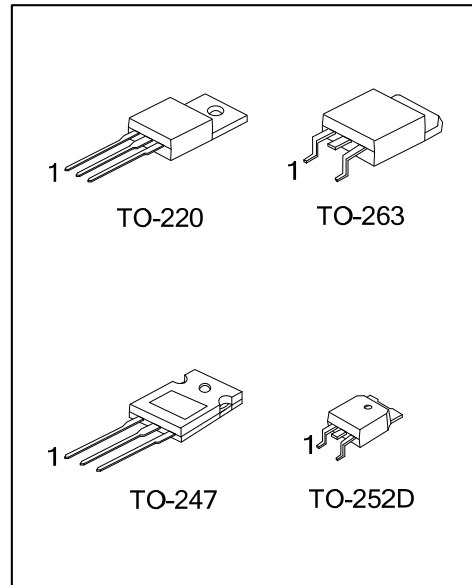


ORDERING INFORMATION

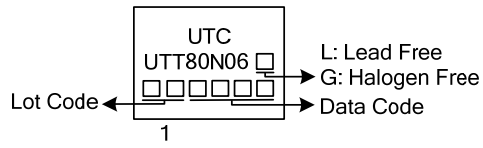
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT80N06L-TA3-T	UTT80N06G-TA3-T	TO-220	G	D	S	Tube
UTT80N06L-TND-R	UTT80N06G-TND-R	TO-252D	G	D	S	Tape Reel
UTT80N06L-TQ2-T	UTT80N06G-TQ2-T	TO-263	G	D	S	Tube
UTT80N06L-TQ2-R	UTT80N06G-TQ2-R	TO-263	G	D	S	Tape Reel
UTT80N06L-T47-T	UTT80N06G-T47-T	TO-247	G	D	S	Tube

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

UTT80N06G-TA3-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TND: TO-252D, TQ2: TO-263 T47: TO-247 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING



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■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise specified) (Note 2)

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V_{DSS}	60	V	
Gate-Source Voltage		V_{GSS}	± 20	V	
Drain Current	Continuous	I_D	$T_C=25^\circ\text{C}$	80	A
			$T_C=100^\circ\text{C}$	65	A
	Pulsed (Note 3)		I_{DM}	320	A
Avalanche Current (Note 3)		I_{AR}	80	A	
Avalanche Energy	Single Pulsed (Note 4)	E_{AS}	200	mJ	
Peak Diode Recovery dv/dt (Note 5)		dv/dt	3.2	V/nS	
Power Dissipation	TO-220/TO-263	P_D	147	W	
	TO-252D		50	W	
	TO-247		230	W	
Junction Temperature		T_J	+150	$^\circ\text{C}$	
Storage Temperature		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. Drain current limited by maximum junction temperature.
3. Repetitive Rating: Pulse width limited by maximum junction temperature.
4. $L = 0.06\text{mH}$, $I_{AS} = 80\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$.
5. $I_{SD} \leq 80\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-263	θ_{JA}	62.5	$^\circ\text{C}/\text{W}$
	TO-252D		110	
	TO-247		30	
Junction to Case	TO-220/TO-263	θ_{JC}	0.85	$^\circ\text{C}/\text{W}$
	TO-252D		2.5	
	TO-247		0.54	

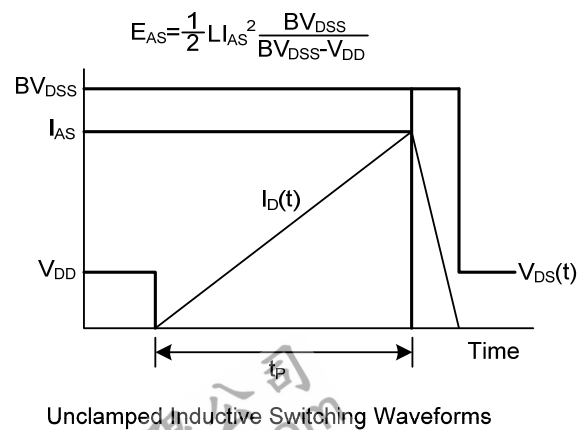
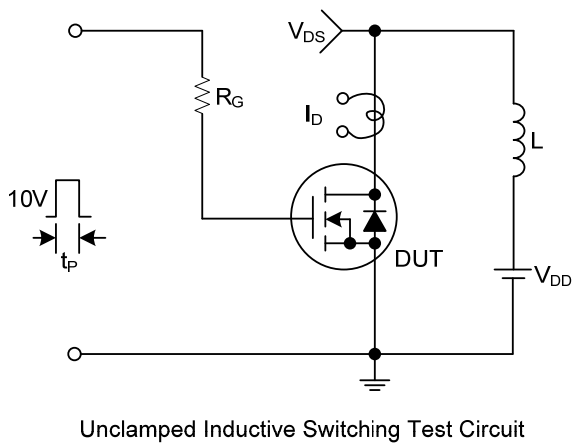
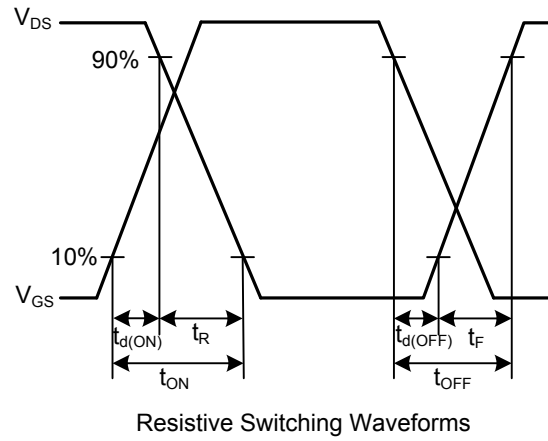
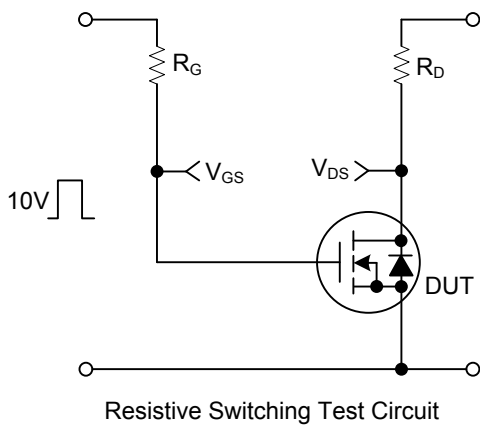
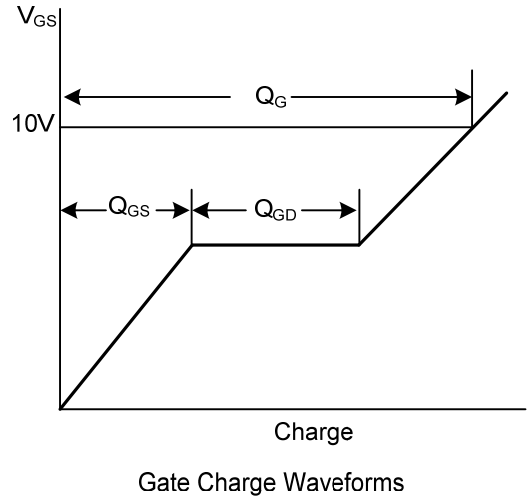
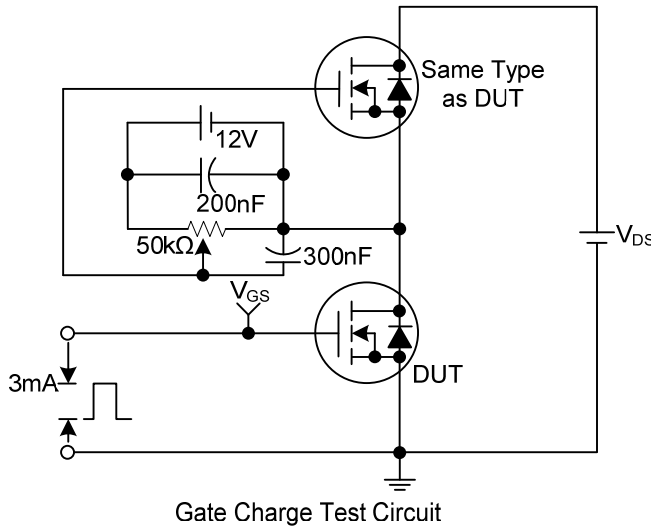
■ ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$, $T_J=25^\circ\text{C}$	60			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}			+100	nA
	Reverse					
					-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2.0		4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=40\text{A}$			10	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		3800		pF
Output Capacitance	C_{OSS}			375		pF
Reverse Transfer Capacitance	C_{RSS}			320		pF
SWITCHING PARAMETERS						
Total Gate Charge at 10V	Q_G	$V_{GS}=10\text{V}$, $V_{DS}=50\text{V}$, $I_D=1.3\text{A}$ (Note 1, 2)		93		nC
Gate to Source Charge	Q_{GS}			15		nC
Gate to Drain Charge	Q_{GD}			28		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=0.5\text{A}$, $R_G=25\Omega$ (Note 1, 2)		90		ns
Rise Time	t_R			172		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			786		ns
Fall-Time	t_F			330		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	V_{SD}	$I_S=80\text{A}$, $V_{GS}=0\text{V}$			1.4	V
Reverse Recovery Time	t_{rr}	$I_S=30\text{A}$, $V_{GS}=0\text{V}$, $dI/dt=100\text{A}/\mu\text{s}$		74		nS
Reverse Recovery Charge	Q_{rr}			92		nC

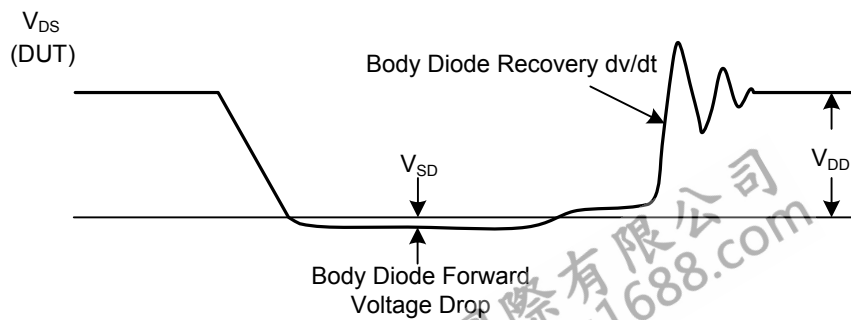
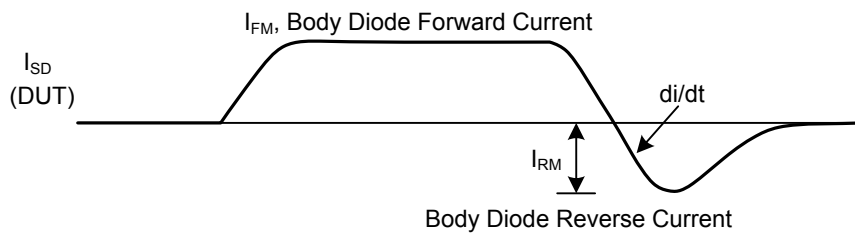
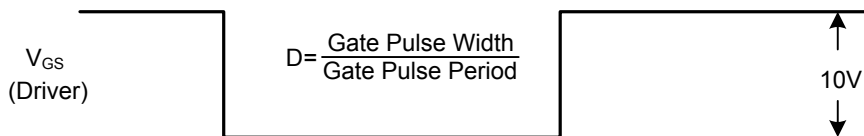
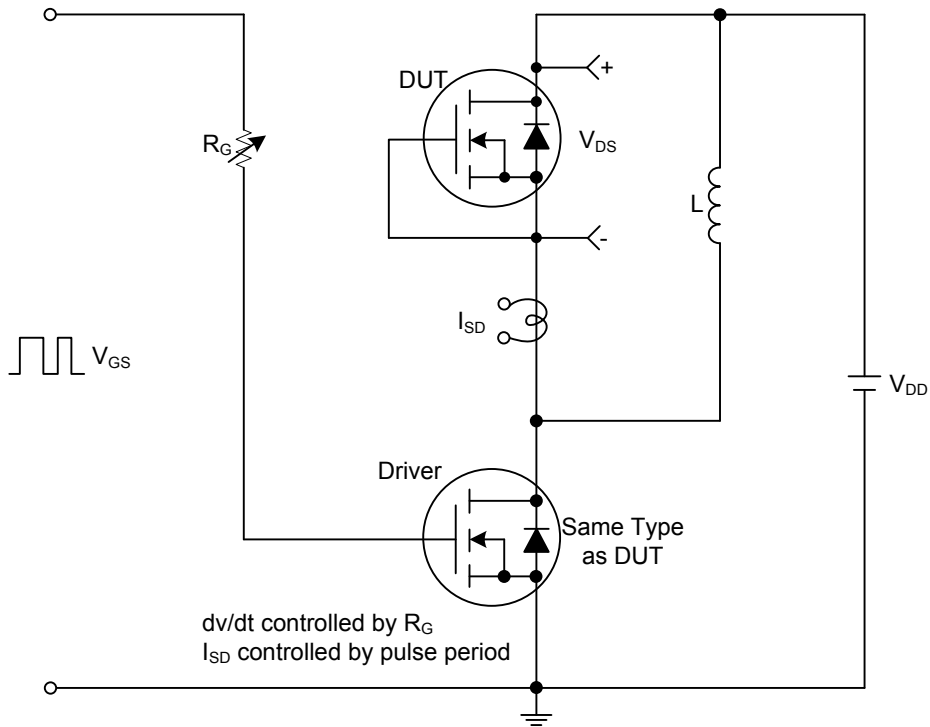
Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

2. Essentially independent of operating temperature typical characteristics

TEST CIRCUITS AND WAVEFORMS



TEST CIRCUITS AND WAVEFORMS(Cont.)



Peak Diode Recovery dv/dt Test Circuit and Waveforms

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