



UTT15N06

Power MOSFET

15A, 60V N-CHANNEL MOSFET

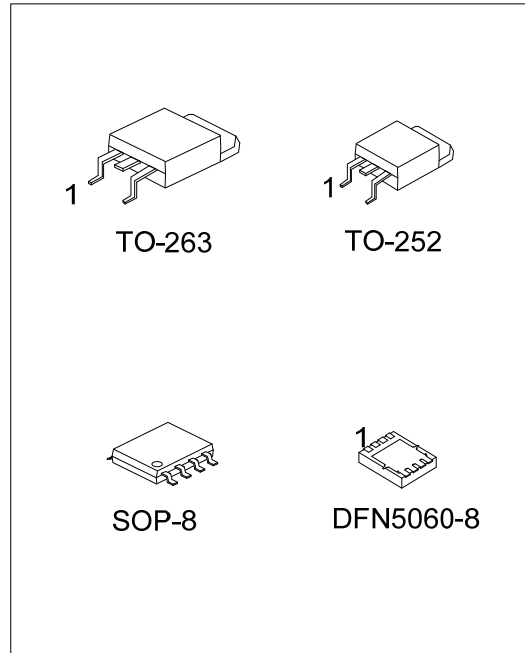
■ DESCRIPTION

The UTC **UTT15N06** is a N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed, low gate charge and a minimum on-state resistance.

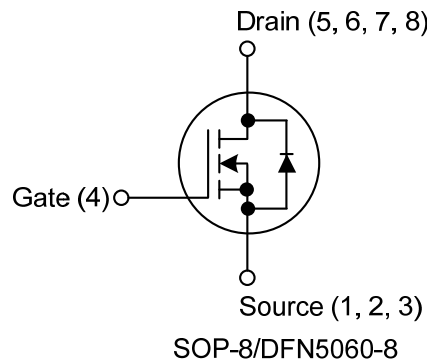
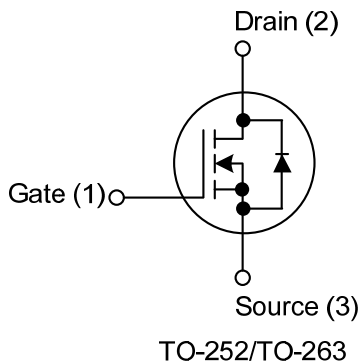
The UTC **UTT15N06** is suitable for synchronous rectifier and load switch.

■ FEATURES

- * $R_{DS(ON)} \leq 28m\Omega @ V_{GS}=10V, I_D=15A$
- $R_{DS(ON)} \leq 30m\Omega @ V_{GS}=4.5V, I_D=15A$
- * High switching speed
- * Low gate charge



■ SYMBOL



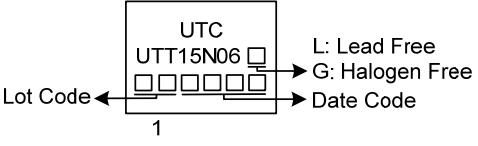
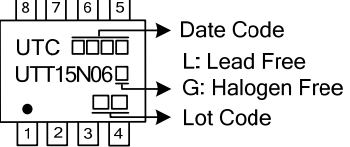
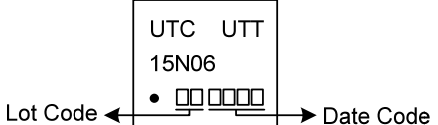
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT15N06L-TN3-R	UTT15N06G-TN3-R	TO-252	G	D	S						Tape Reel
UTT15N06L-TQ2-T	UTT15N06G-TQ2-T	TO-263	G	D	S	-	-	-	-	-	Tube
UTT15N06L-TQ2-R	UTT15N06G-TQ2-R	TO-263	G	D	S	-	-	-	-	-	Tape Reel
UTT15N06L-S08-R	UTT15N06G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel
UTT15N06L-K08-5060-R	UTT15N06G-K08-5060-R	DFN5060-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTT15N06G-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252, TQ2: TO-263, S08: SOP-8, K08-5060: DFN5060-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

Package	Marking
TO-252 TO-263	
SOP-8	
DFN5060-8	

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

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V_{DSS}	60	V	
Gate-Source Voltage		V_{GSS}	± 12	V	
Drain Current	Continuous	I_D	$T_C=25^\circ\text{C}$	15	A
			$T_C=100^\circ\text{C}$	15	A
		Pulsed	I_{DM}	60	A
Avalanche Energy		Single Pulsed	E_{AS}	50	mJ
Power Dissipation		TO-252	P_D	42	W
		TO-263		80	W
		SOP-8		5.0	W
		DFN5060-8		3.5	W
Operating Temperature		T_{OPR}	-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. $L = 1.2\text{mH}$, $I_{AS} = 15\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$

■ THERMAL CHARACTERISTICS

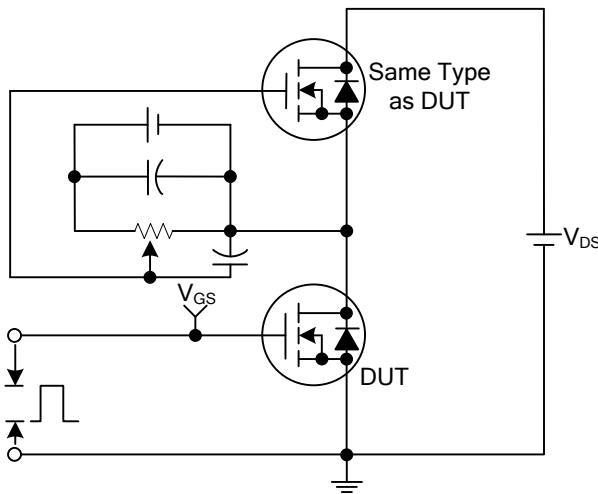
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	TO-252	θ_{JA}	100	$^\circ\text{C/W}$
	TO-263		35	$^\circ\text{C/W}$
	SOP-8		50	$^\circ\text{C/W}$
	DFN5060-8		42	$^\circ\text{C/W}$
Junction to Case	TO-252	θ_{JC}	3	$^\circ\text{C/W}$
	TO-263		1.6	$^\circ\text{C/W}$
	SOP-8		25	$^\circ\text{C/W}$
	DFN5060-8		35	$^\circ\text{C/W}$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square pad.

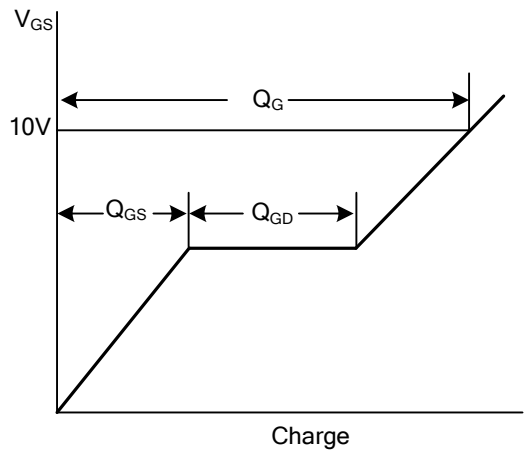
■ ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	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}	$V_{GS}=10\text{V}$, $V_{DS}=0\text{V}$			100	nA
	Reverse		$V_{GS}=-10\text{V}$, $V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	0.5		2	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=15\text{A}$		23.9	28	$\text{m}\Omega$
			$V_{GS}=4.5\text{V}$, $I_D=15\text{A}$		25.7	30	$\text{m}\Omega$
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		1370		pF
Output Capacitance		C_{OSS}			110		pF
Reverse Transfer Capacitance		C_{RSS}			70		pF
Gate Resistance		R_G			0.85		Ω
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{DD}=50\text{V}$, $I_D=1.3\text{A}$, $I_G=100\mu\text{A}$, $V_{GS}=10\text{V}$		145		nC
Gate to Source Charge		Q_{GS}			5.0		nC
Gate to Drain Charge		Q_{GD}			6.5		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=0.5\text{A}$, $R_G=25\Omega$, $V_{DS}=10\text{V}$		36		ns
Rise Time		t_r			40		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			520		ns
Fall-Time		t_f			100		ns

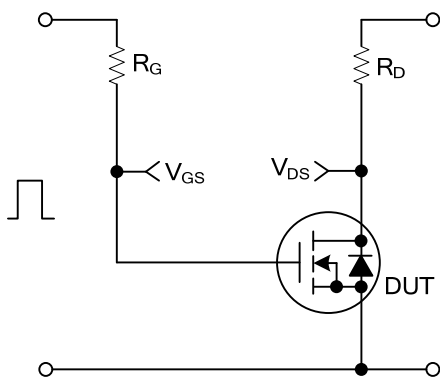
TEST CIRCUITS AND WAVEFORMS



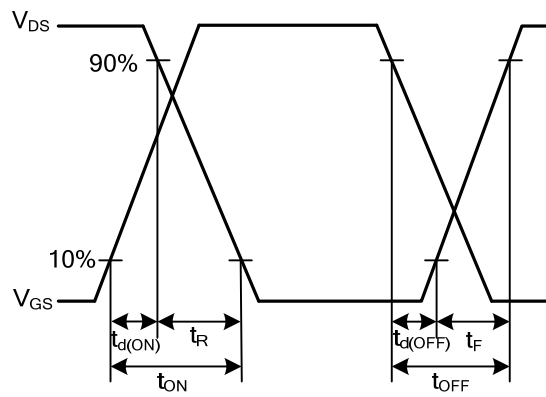
Gate Charge Test Circuit



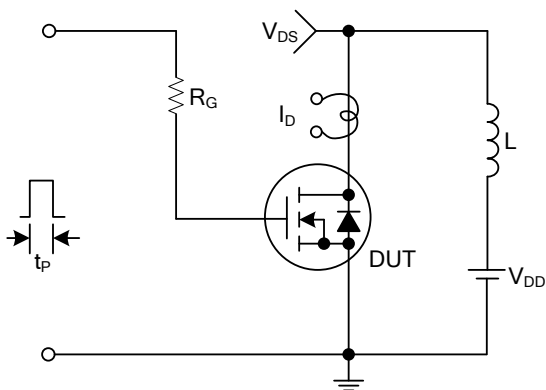
Gate Charge Waveforms



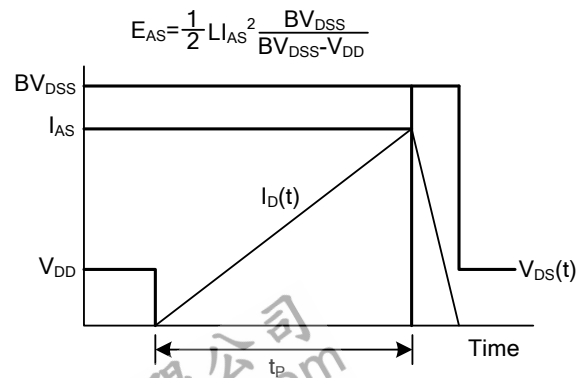
Resistive Switching Test Circuit



Resistive Switching Waveforms

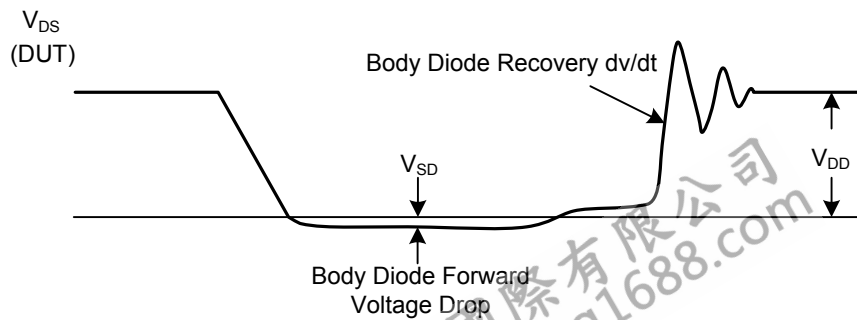
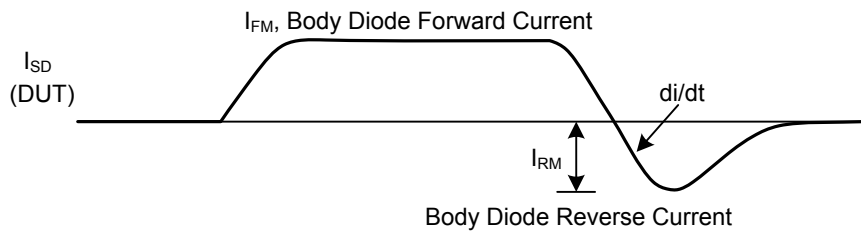
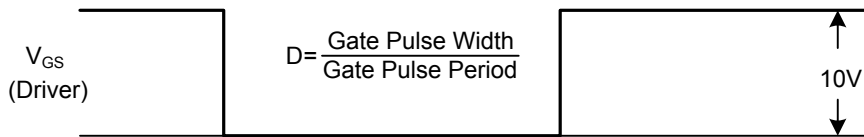
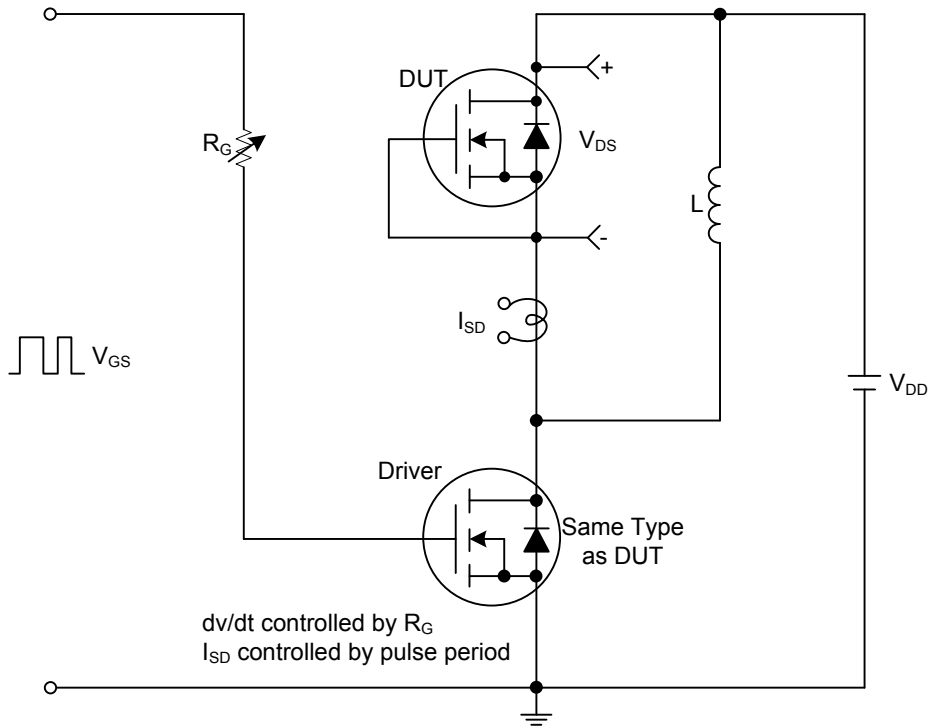


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

■ TEST CIRCUITS AND WAVEFORMS



Peak Diode Recovery dv/dt Test Circuit and Waveforms

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