



UTT60N10

Power MOSFET

60A, 100V N-CHANNEL ENHANCEMENT MODE POWER MOSFET TRANSISTOR

■ DESCRIPTION

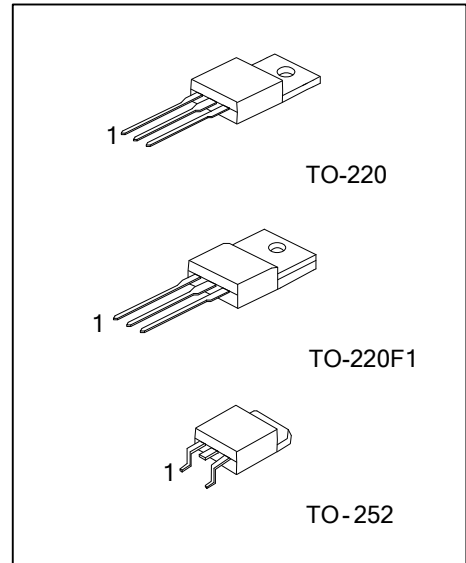
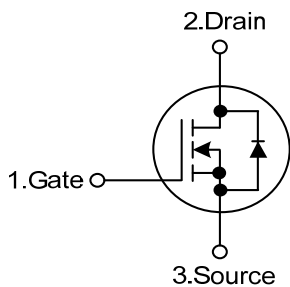
The UTC **UTT60N10** is an N-channel enhancement power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **UTT60N10** is suitable for motor control, AC-DC or DC-DC converters and audio amplifiers, etc.

■ FEATURES

- * $R_{DS(ON)} < 24m\Omega @ V_{GS}=10V, I_D=30A$
- * High Switching Speed
- * High Current Capacity

■ SYMBOL



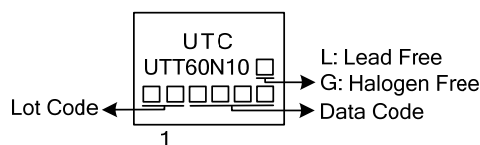
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT60N10L-TA3-T	UTT60N10G-TA3-T	TO-220	G	D	S	Tube
UTT60N10L-TF1-T	UTT60N10G-TF1-T	TO-220F1	G	D	S	Tube
UTT60N10L-TN3-R	UTT60N10G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT60N10L-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF1: TO-220F1, TN3: TO-252 (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±25	V
Drain Current	Continuous	I_D	60	A
	Pulsed	I_{DM}	100	A
Avalanche Energy		E_{AS}	270	mJ
Power Dissipation	TO-220	P_D	100	W
	TO-220F1			W
	TO-252		114	W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 ~ 150	°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.

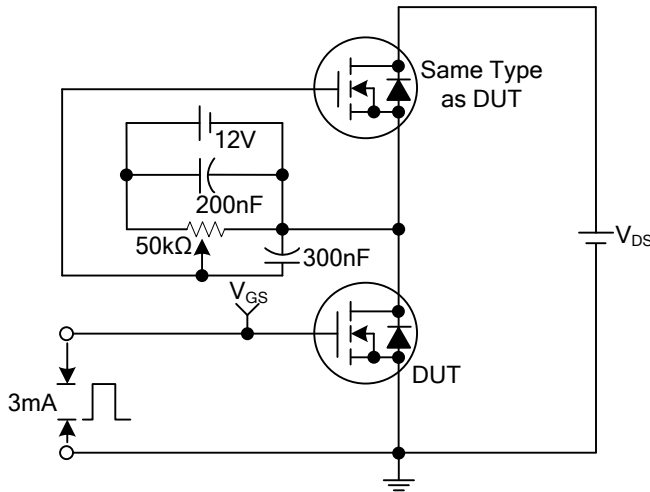
■ THERMAL RESISTANCES CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/ TO-220F1	θ_{JA}	62.5	°C/W
	TO-252		100	
Junction to Case	TO-220	θ_{JC}	1.25	°C/W
	TO-220F1		1.77	
	TO-252		2.5	

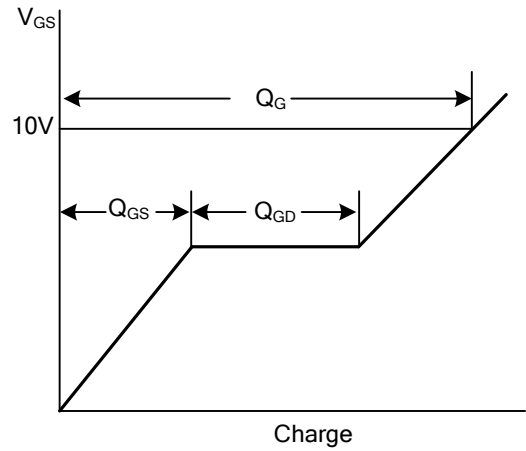
■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	100			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+25V, V_{DS}=0V$			+100	nA
	Reverse		$V_{GS}=-25V, V_{DS}=0V$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		3.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$		15	24	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0V, V_{DS}=25V, f=1.0MHz$		1320	1900	pF
Output Capacitance		C_{OSS}			330	680	pF
Reverse Transfer Capacitance		C_{RSS}			132	200	pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30V, I_D=0.5A, R_G=50\Omega, V_{GS}=10V$		140		ns
Rise Time		t_R			180		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			2180		ns
Fall-Time		t_F			396		ns
Total Gate Charge		Q_G	$V_{GS}=10V, V_{DS}=25V, I_D=1.3A, I_G=100\mu A$		213		nC
Gate to Source Charge		Q_{GS}			17		nC
Gate to Drain Charge		Q_{GD}			33		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S		60			A
Maximum Body-Diode Pulsed Current		I_{SM}		100			A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=30A, V_{GS}=0V$			1.5	V

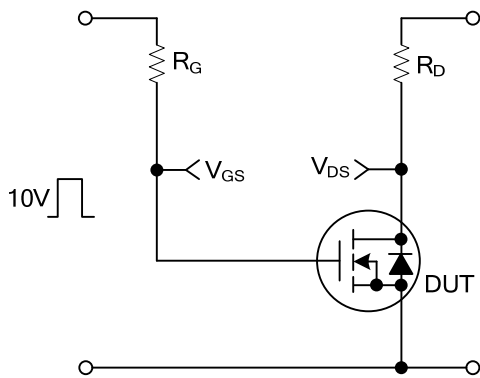
TEST CIRCUITS AND WAVEFORMS



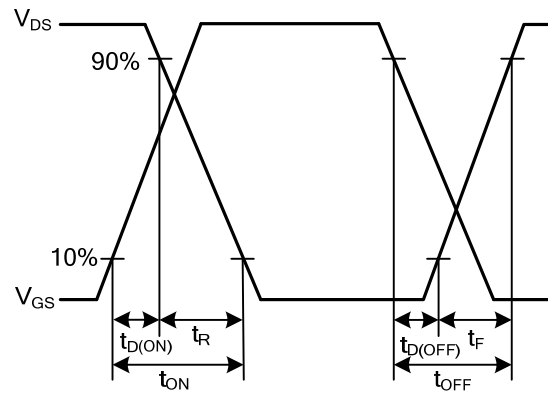
Gate Charge Test Circuit



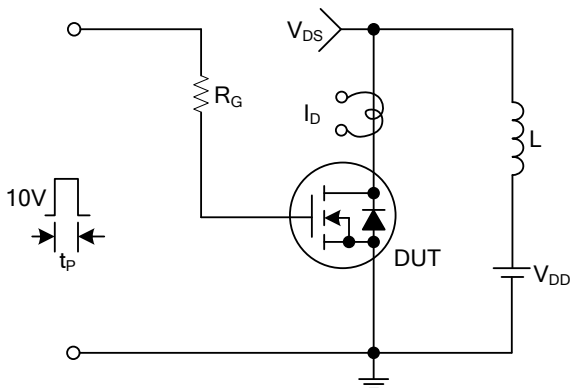
Gate Charge Waveforms



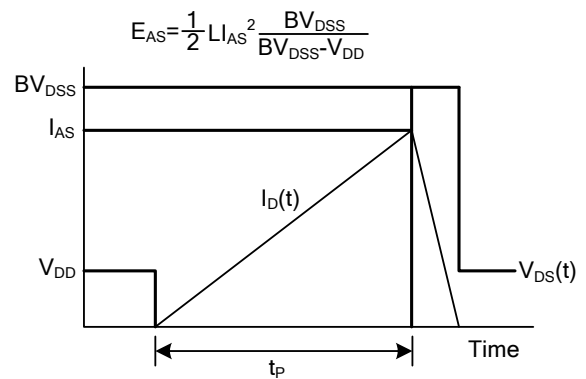
Resistive Switching Test Circuit



Resistive Switching Waveforms

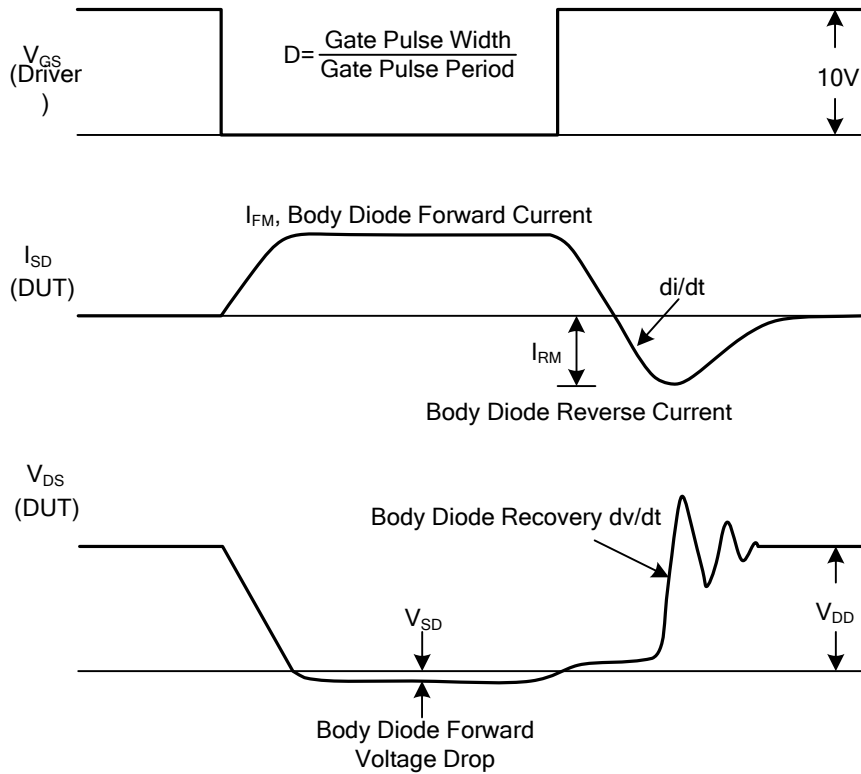
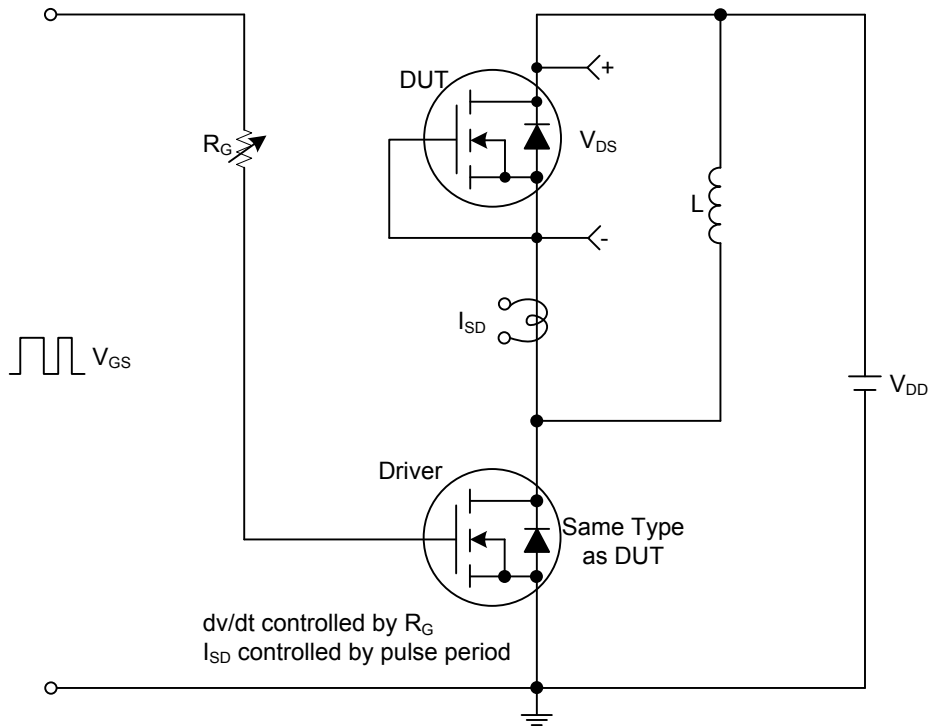


Unclamped Inductive Switching Test Circuit



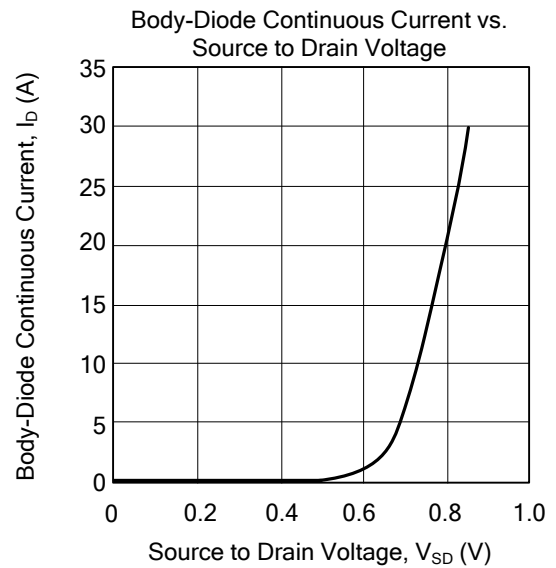
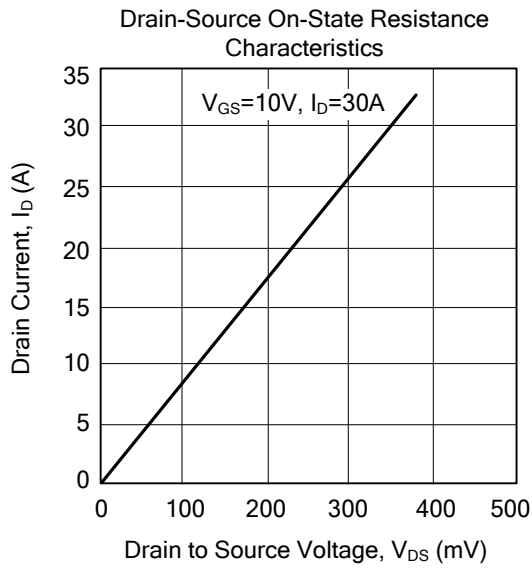
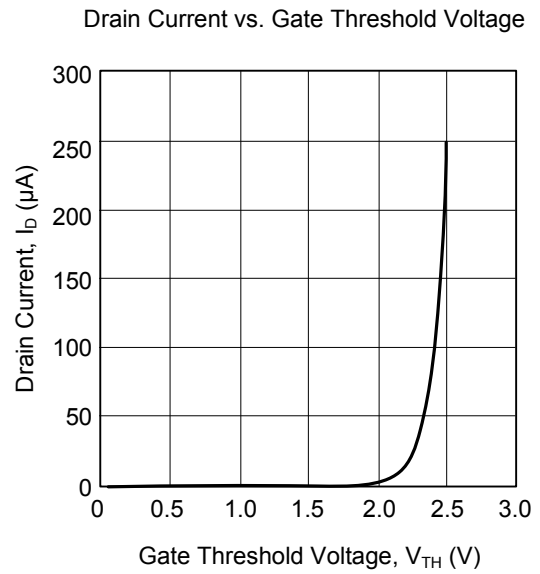
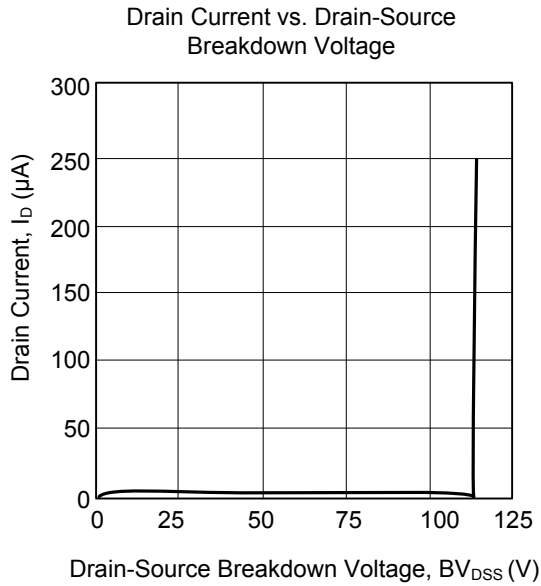
Unclamped Inductive Switching Waveforms

TEST CIRCUITS AND WAVEFORMS(Cont.)



Peak Diode Recovery dv/dt Test Circuit and Waveforms

■ TYPICAL CHARACTERISTICS



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