



UTT36N10

Power MOSFET

36A, 100V N-CHANNEL POWER MOSFET

DESCRIPTION

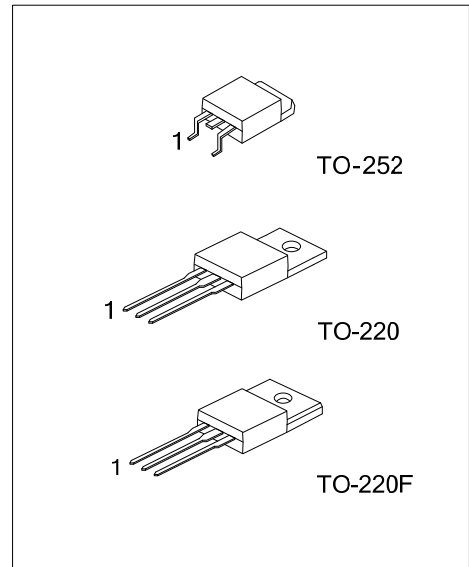
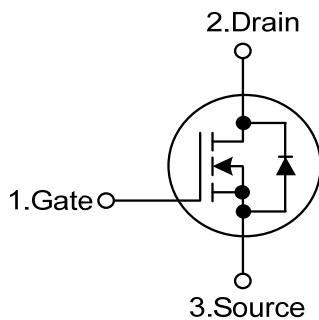
The UTC **UTT36N10** is a N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and high switching speed.

The UTC **UTT36N10** is suitable for high voltage synchronous rectifier and DC/DC converters, etc.

FEATURES

* High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT36N10L-TA3-T	UTT36N10G-TA3-T	TO-220	G	D	S	Tube
UTT36N10L-TF3-T	UTT36N10G-TF3-T	TO-220F	G	D	S	Tube
UTT36N10L-TN3-T	UTT36N10G-TN3-T	TO-252	G	D	S	Tube
UTT36N10L-TN3-R	UTT36N10G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT36N10L-TA3-T 	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TF3: TO-220F, TN3: TO-252 (3) L: Lead Free, G: Halogen Free
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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}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous ($V_{GS}=10\text{V}$) $T_c=25^\circ\text{C}$	I_D	36	A
	Pulsed	I_{DM}	144	A
Single Pulsed Avalanche Energy (Note 2)		E_{AS}	55	mJ
Power Dissipation	TO-220	P_D	125	W
	TO-220F		79	
	TO-252		44	
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. Starting $T_J = 25^\circ\text{C}$, $L = 0.27\text{mH}$, $I_{AS} = 30\text{A}$.

3. Pulse Width = 100 μs

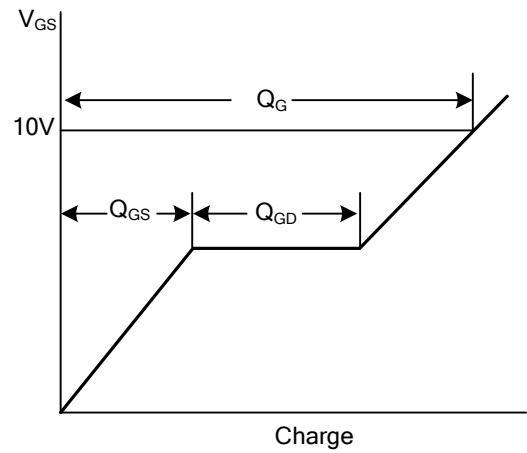
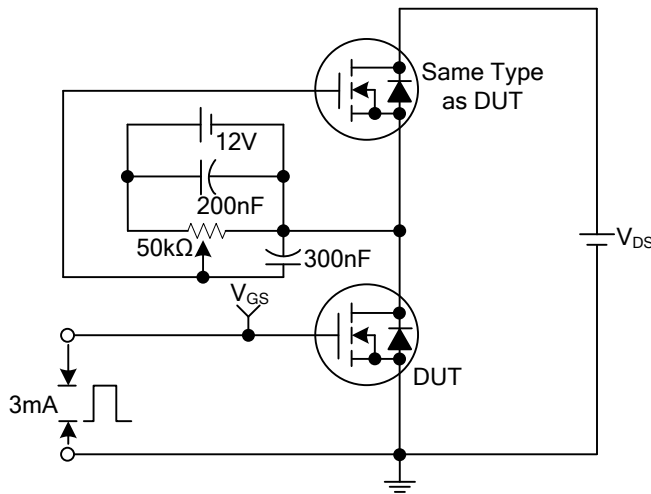
■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	$^\circ\text{C/W}$
	TO-220F		62	
	TO-252		110	
Junction to Case	TO-220	θ_{JC}	1	$^\circ\text{C/W}$
	TO-220F		1.58	
	TO-252		2.85	

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

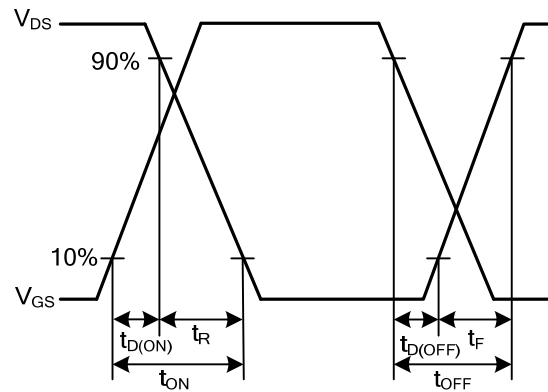
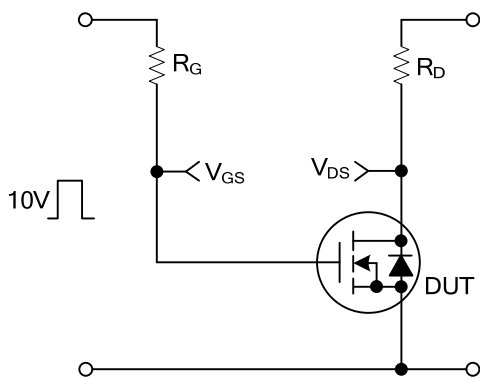
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	100			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate- Source Leakage Current		I_{GSS}			+100	nA
					-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1		3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=30\text{A}$		32	43	m Ω
		$V_{GS}=6\text{V}$, $I_D=15\text{A}$		40	72	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		2233		pF
Output Capacitance	C_{OSS}			171		pF
Reverse Transfer Capacitance	C_{RSS}			119		pF
SWITCHING PARAMETERS						
Turn-ON Time	t_{ON}	$V_{DD}=30\text{V}$, $I_D=1\text{A}$, $V_{GS}=10\text{V}$, $R_{GS}=50\Omega$		72	83	ns
Turn-ON Delay Time	$t_{D(ON)}$			93	112	ns
Rise Time	t_R			868	890	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			168	180	ns
Total Gate Charge at 10V	Q_G	$V_{DD}=40\text{V}$, $I_D=36\text{A}$, $V_{GS}=10\text{V}$		180	200	nC
Gate to Source Charge	Q_{GS}			21		nC
Gate to Drain Charge	Q_{GD}			20		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=15\text{A}$			1.0	V

TEST CIRCUITS AND WAVEFORMS



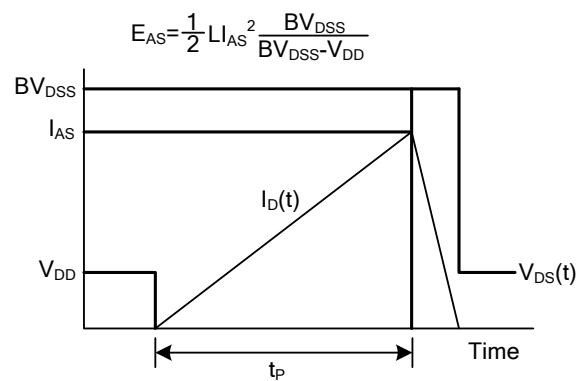
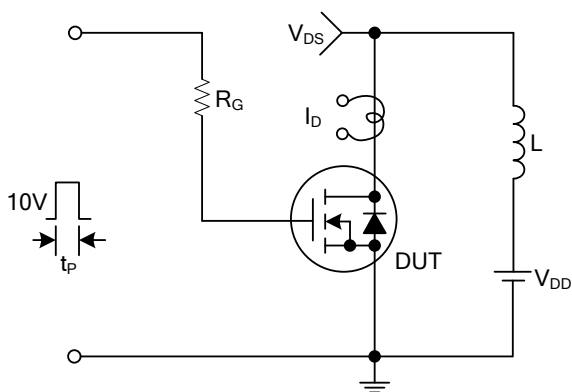
Gate Charge Test Circuit

Gate Charge Waveforms



Resistive Switching Test Circuit

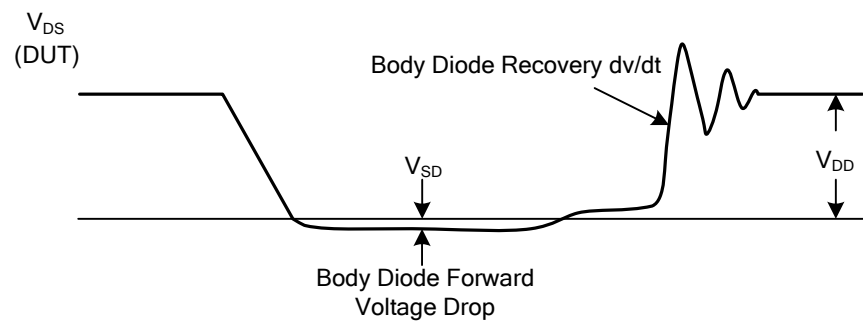
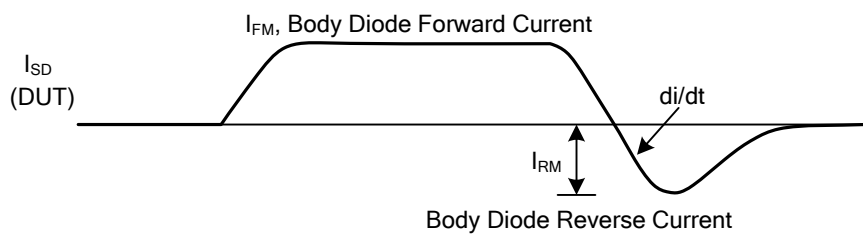
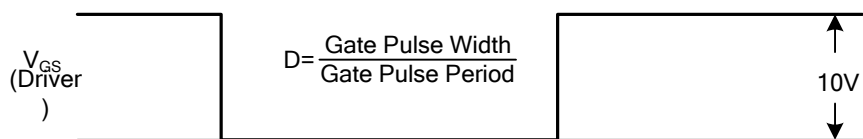
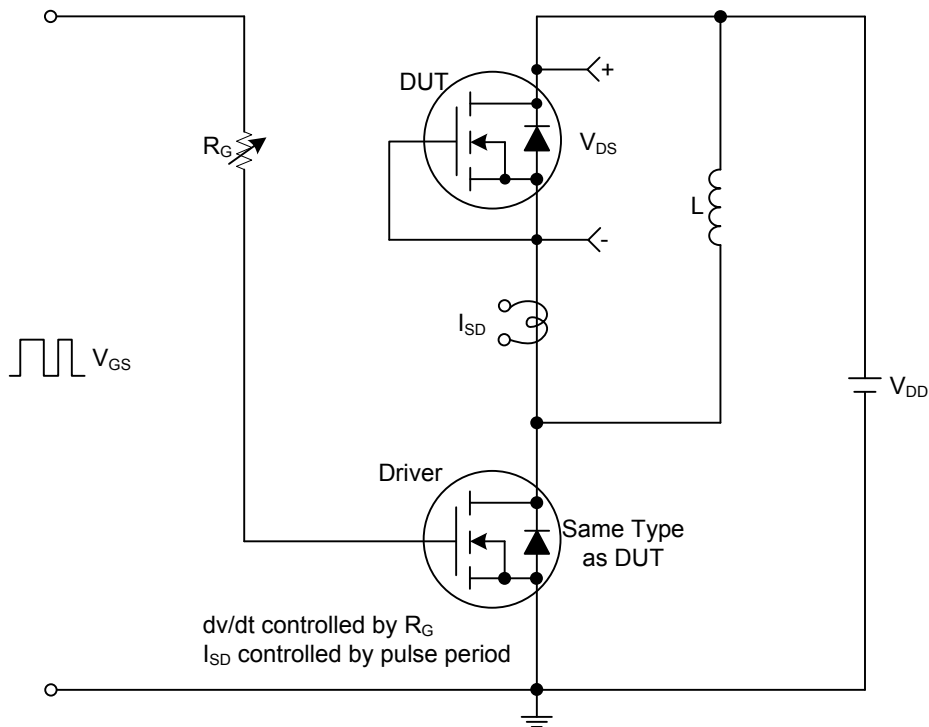
Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit

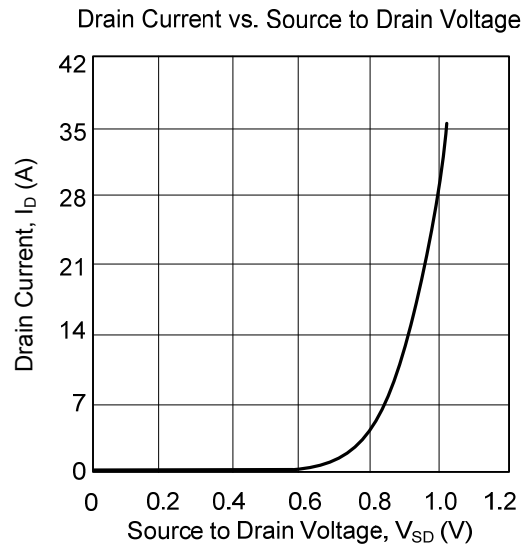
Unclamped Inductive Switching Waveforms

■ TEST CIRCUITS AND WAVEFORMS(Cont.)



Peak Diode Recovery dv/dt Test Circuit and Waveforms

■ TYPICAL CHARACTERISTICS



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