



UTT36N10

Power MOSFET

36A, 100V N-CHANNEL POWER MOSFET

■ DESCRIPTION

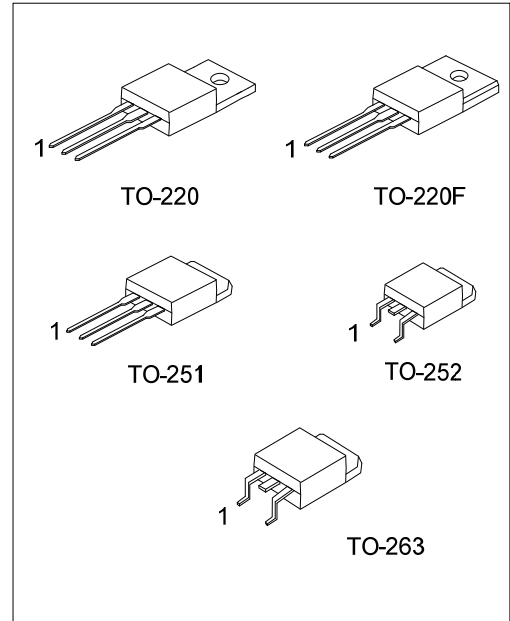
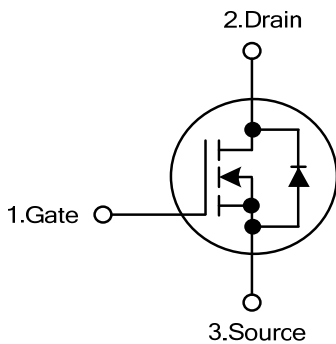
The UTC **UTT36N10** is a N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and high switching speed.

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

■ FEATURES

* High Switching Speed

■ SYMBOL



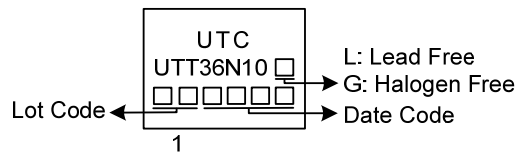
■ ORDERING INFORMATION

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-TM3-T	UTT36N10G-TM3-T	TO-251	G	D	S	Tube
UTT36N10L-TN3-R	UTT36N10G-TN3-R	TO-252	G	D	S	Tape Reel
UTT36N10L-TQ2-T	UTT36N10G-TQ2-T	TO-263	G	D	S	Tube
UTT36N10L-TQ2-R	UTT36N10G-TQ2-R	TO-263	G	D	S	Tape Reel

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

<p>UTT36N10G-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TF3: TO-220F, TM3: TO-251</p> <p>TN3: TO-252, TQ2: TO-263</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_c=25°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} =10V) T _c =25°C	I _D	36	A
	Pulsed	I _{DM}	144	A
Single Pulsed Avalanche Energy (Note 2)		E _{AS}	55	mJ
Power Dissipation	TO-220/TO-263	P _D	125	W
	TO-220F		79	
	TO-251/TO-252		44	
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. Starting T_J = 25°C, L = 0.27mH, I_{AS} = 30A.

3. L=9.25mH, I_{AS}=9A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C

4. Pulse Width = 100s.

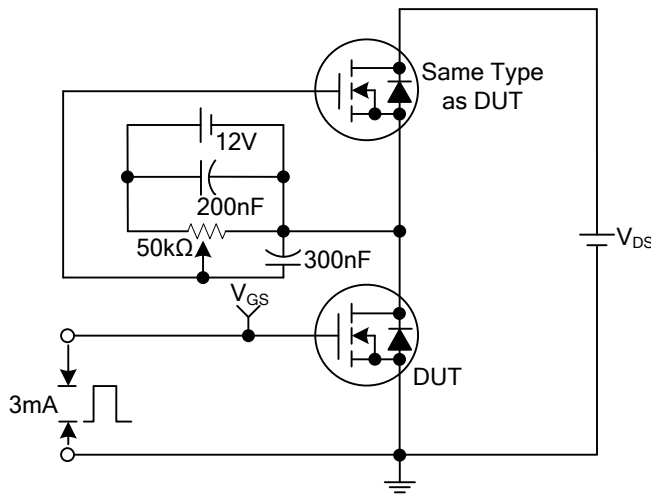
■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-263	θ _{JA}	62.5	°C/W
	TO-220F		62	
	TO-251/TO-252		110	
Junction to Case	TO-220/TO-263	θ _{JC}	1	°C/W
	TO-220F		1.58	
	TO-251/TO-252		2.85	

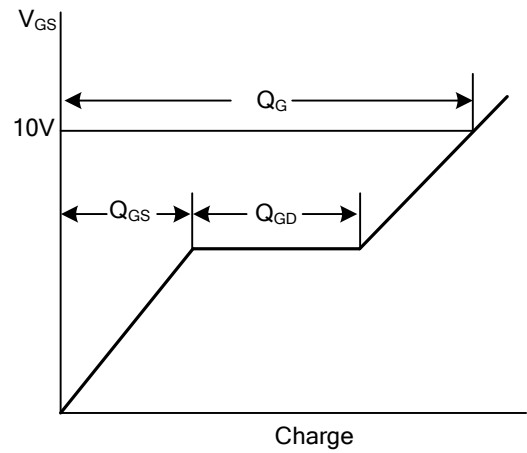
■ ELECTRICAL CHARACTERISTICS (T_c=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	100			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Gate- Source Leakage Current	I _{GSS}	Forward			+100	nA
		Reverse	V _{GS} =+20V, V _{DS} =0V			-100
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A		32	52	mΩ
		V _{GS} =6V, I _D =15A		40	72	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		2233		pF
Output Capacitance	C _{OSS}			171		pF
Reverse Transfer Capacitance	C _{RSS}			119		pF
SWITCHING PARAMETERS						
Total Gate Charge at 10V	Q _G	V _{DD} =40V, I _D =36A, V _{GS} =10V		180	200	nC
Gate to Source Charge	Q _{GS}			21		nC
Gate to Drain Charge	Q _{GD}			20		nC
Turn-ON Time	t _{ON}	V _{DD} =30V, I _D =1A, V _{GS} =10V, R _{GS} =50Ω		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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _{SD} =15A			1.0	V

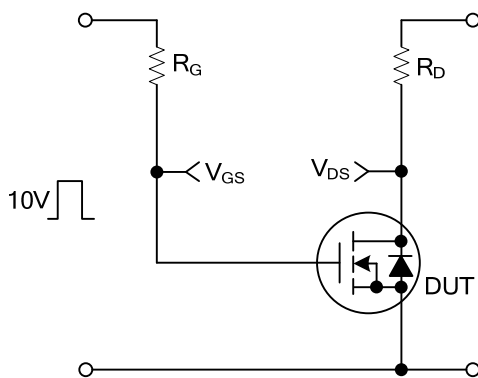
TEST CIRCUITS AND WAVEFORMS



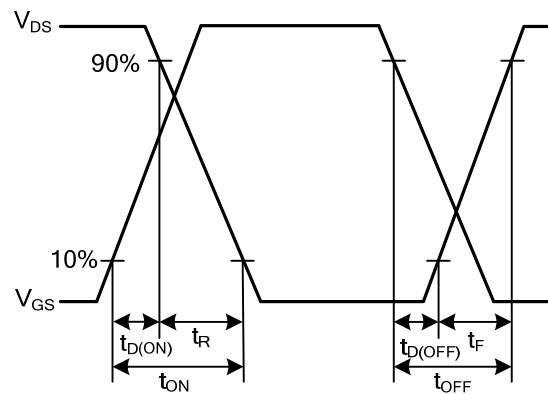
Gate Charge Test Circuit



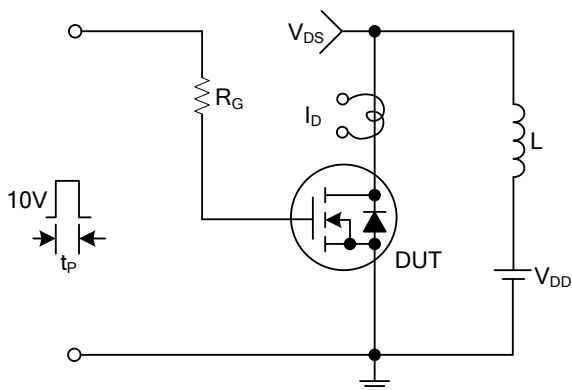
Gate Charge Waveforms



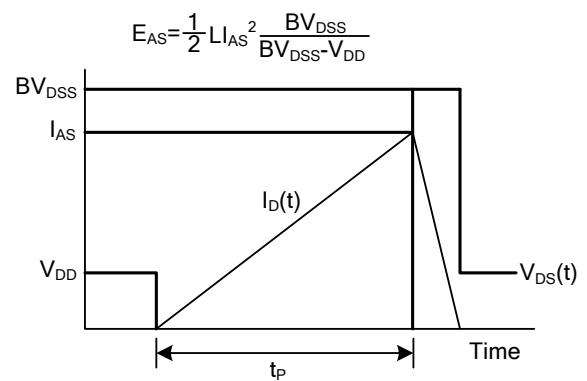
Resistive Switching Test Circuit



Resistive Switching Waveforms

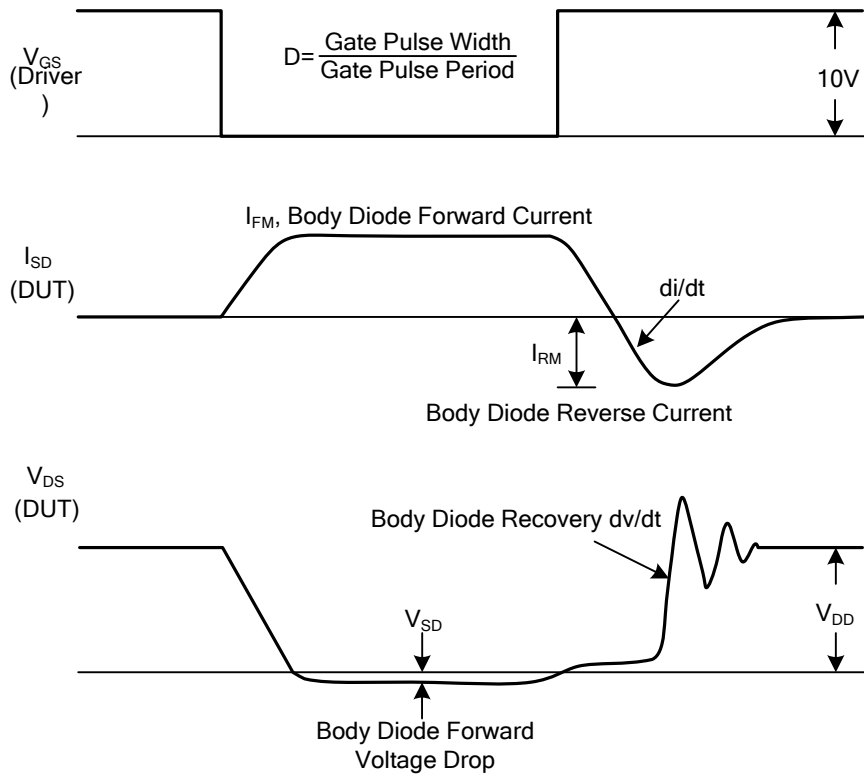
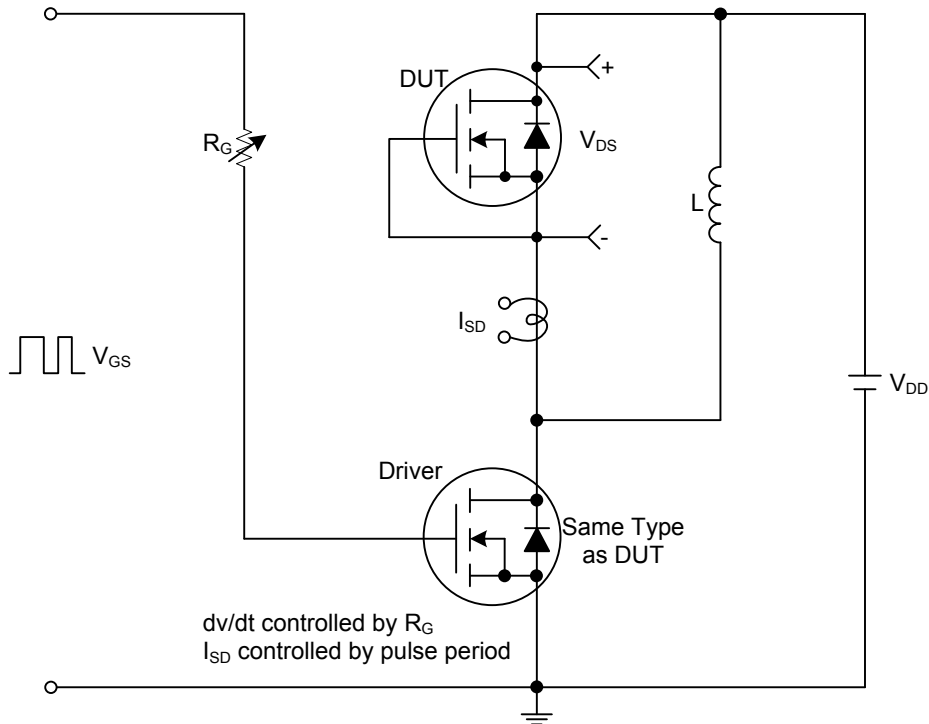


Unclamped Inductive Switching Test Circuit



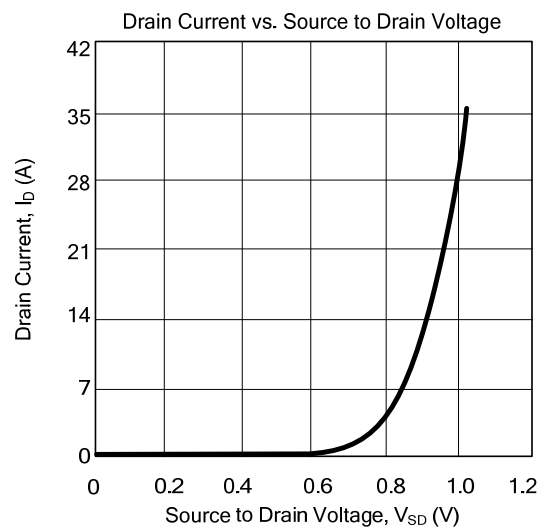
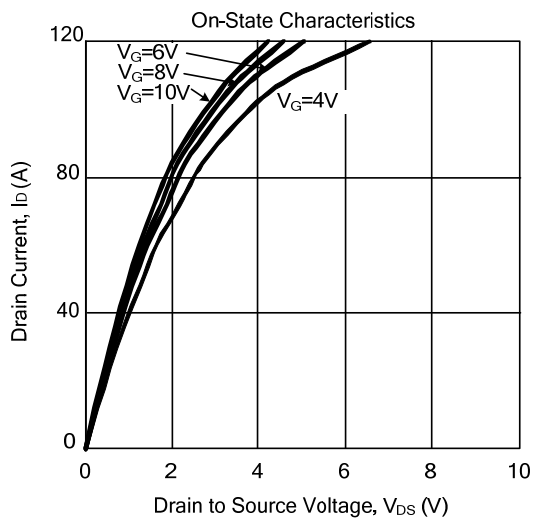
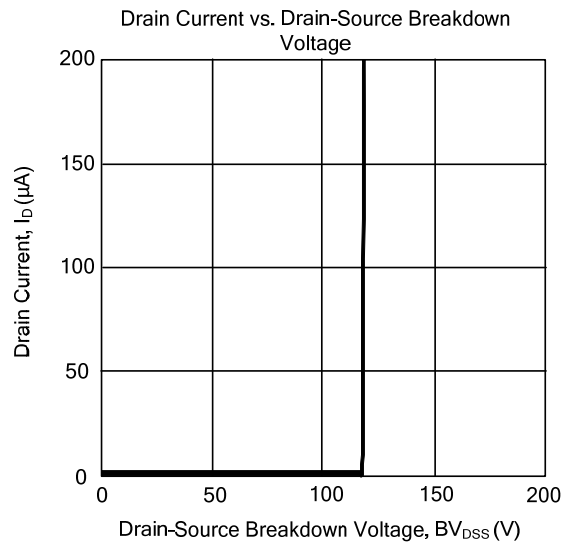
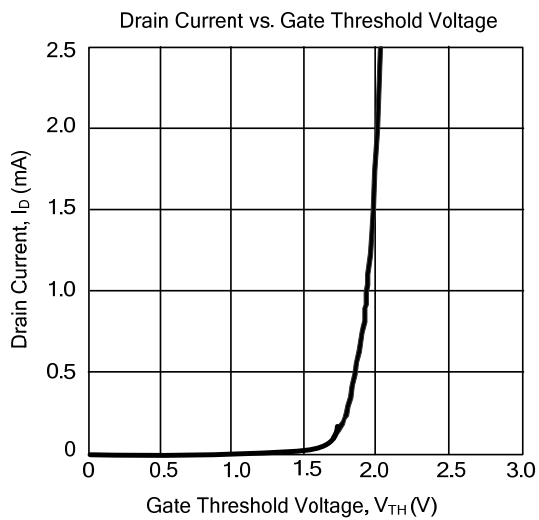
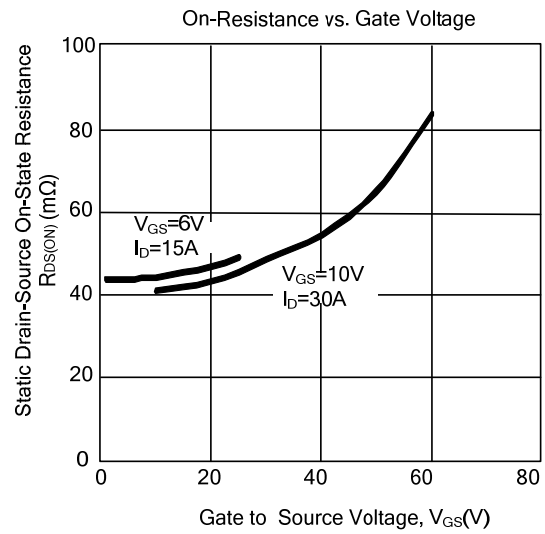
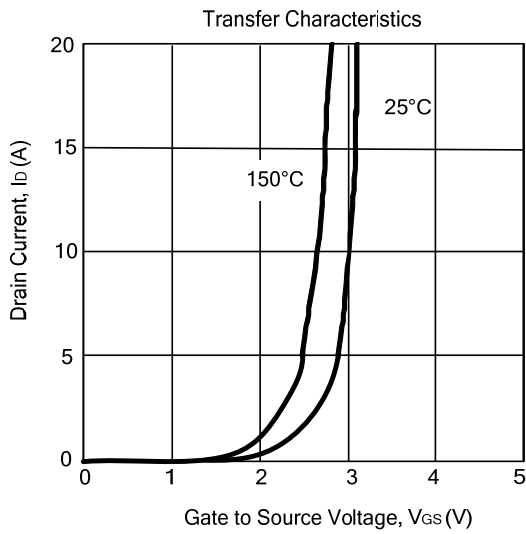
Unclamped Inductive Switching Waveforms

■ TEST CIRCUITS AND WAVEFORMS

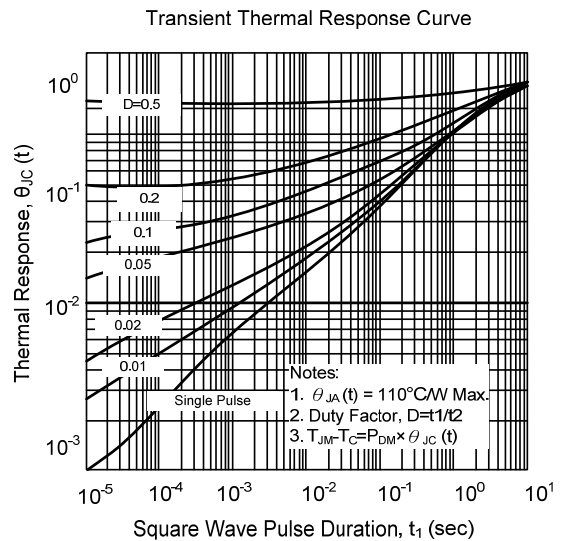
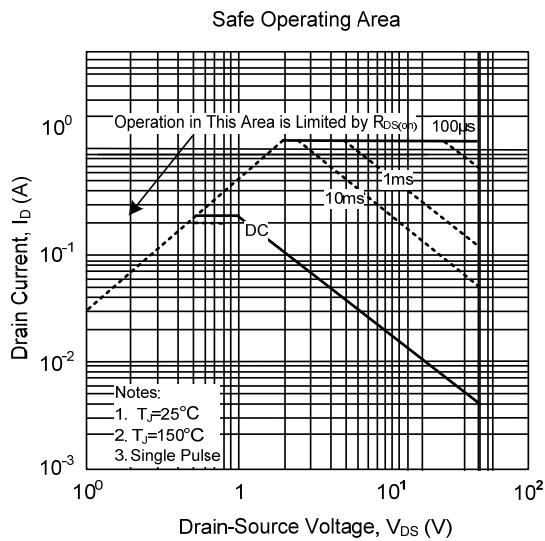


Peak Diode Recovery dv/dt Test Circuit and Waveforms

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.