



UTT200N03

Power MOSFET

200A, 30V N-CHANNEL POWER MOSFET

DESCRIPTION

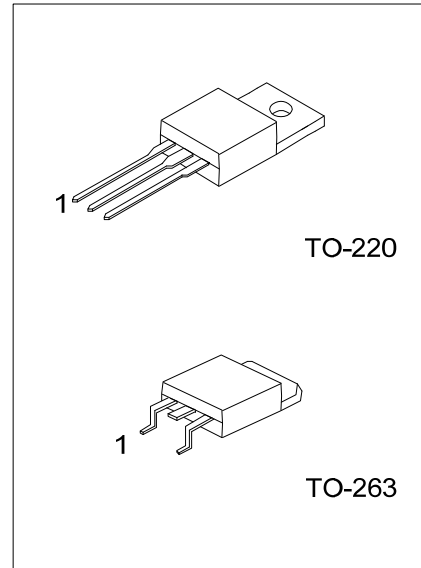
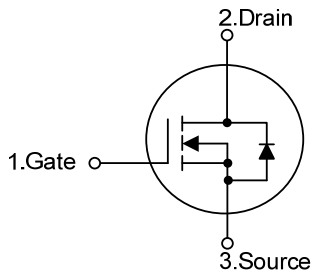
The UTC **UTT200N03** is a N-channel MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

The UTC **UTT200N03** is generally applied in DC to DC convertor or synchronous rectification

FEATURES

- * Fast Switching
- * 100% Avalanche Tested
- * High Power and Current Handling Capability
- * RoHS Compliant

SYMBOL



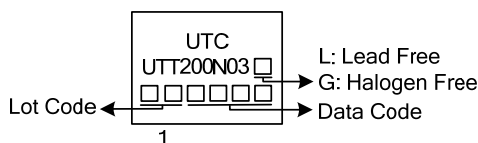
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT200N03L-TA3-T	UTT200N03G-TA3-T	TO-220	G	D	S	Tube
UTT200N03L-TQ2-T	UTT200N03G-TQ2-T	TO-263	G	D	S	Tube
UTT200N03L-TQ2-R	UTT200N03G-TQ2-R	TO-263	G	D	S	Tape Reel

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

<p>UTT200N03G-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, TQ2: TO-263 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS [$T_C=25^{\circ}\text{C}$, unless otherwise specified (Note 6)]

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	200	A
	Pulsed (Note 2)	I_{DM}	800	A
Single Pulsed Avalanche Energy (Note 3)		E_{AS}	864	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	1.4	V/ns
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_D	178	W
Power Dissipation	Derate above 25°C		1.43	W/ $^{\circ}\text{C}$
Junction Temperature		T_J	-55 ~ +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. Repetitive Rating : Pulse width limited by maximum junction temperature.

3. $L=3.0\text{mH}$, $I_{AS}=24\text{A}$, $V_{DD}=30\text{V}$, $R_G=25\ \Omega$, Starting $T_J = 25^{\circ}\text{C}$

4. $I_{SD}\leq 30\text{A}$, $di/dt\leq 200\text{A}/\mu\text{s}$, $V_{DD}\leq BV_{DSS}$, Starting $T_J = 25^{\circ}\text{C}$

■ THERMAL CHARACTERISTICS

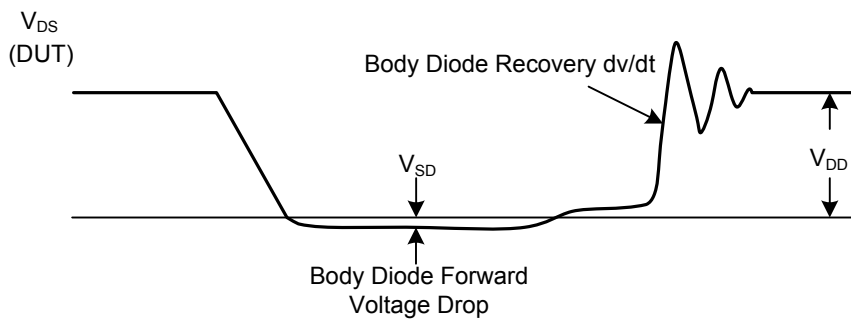
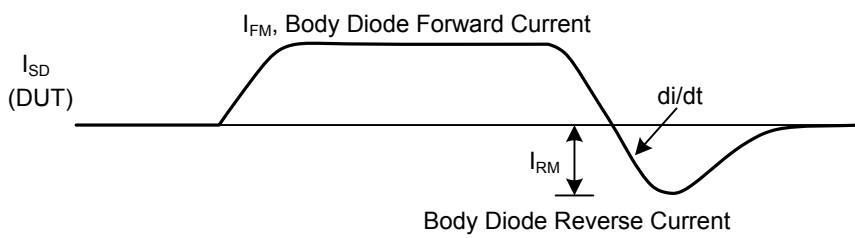
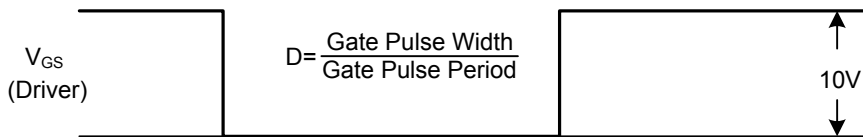
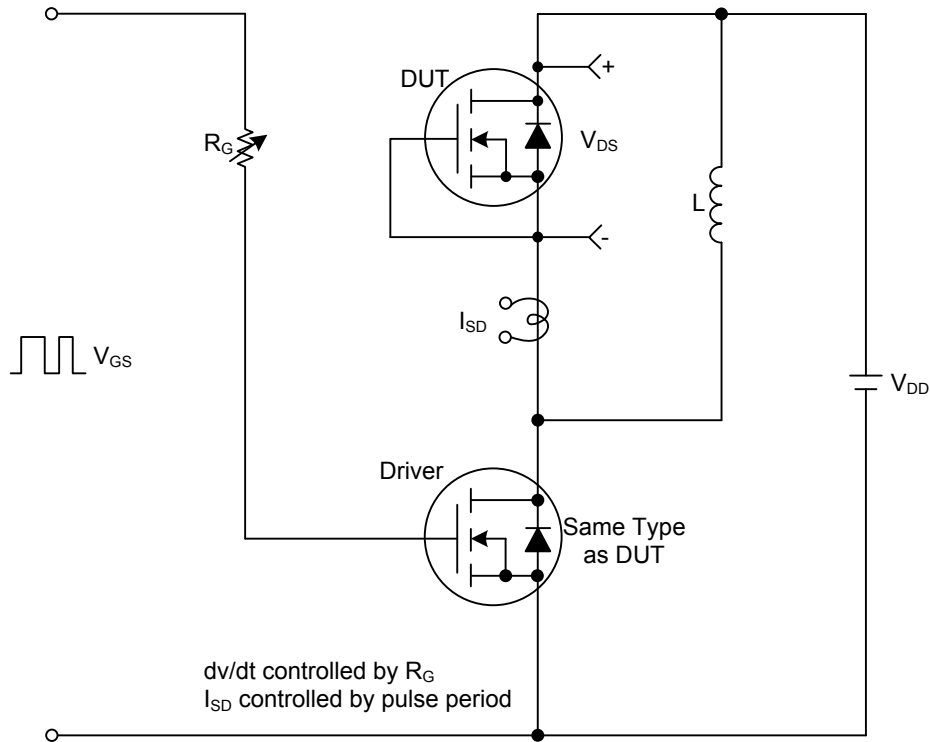
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	0.7	$^{\circ}\text{C}/\text{W}$

■ 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}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$			10	μA
Gate- Source Leakage Current	I_{GSS}	Forward			+100	nA
		Reverse			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1.0		3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=80\text{A}$			2.6	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		5490	7300	pF
Output Capacitance	C_{OSS}			1220	1620	pF
Reverse Transfer Capacitance	C_{RSS}			155	233	pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10\text{V}$, $V_{DS}=25\text{V}$, $I_D=100\text{A}$		200	350	nC
Gate to Source Charge	Q_{GS}			11		nC
Gate to Drain Charge	Q_{GD}			40		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=0.5\text{A}$, $R_{GEN}=4.7\ \Omega$, $V_{GS}=10\text{V}$		70	110	ns
Rise Time	t_R			200	300	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			1600	2000	ns
Fall-Time	t_F			700	1200	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				200	A
Maximum Body-Diode Pulsed Current	I_{SM}				800	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=100\text{A}$, $V_{GS}=0\text{V}$			1.3	V
Reverse Recovery Time	t_{rr}	$I_S=30\text{A}$, $V_{GS}=0\text{V}$, $dI/dt=100\text{A}/\mu\text{s}$		185		ns
Reverse Recovery Charge	Q_{rr}			500		nC

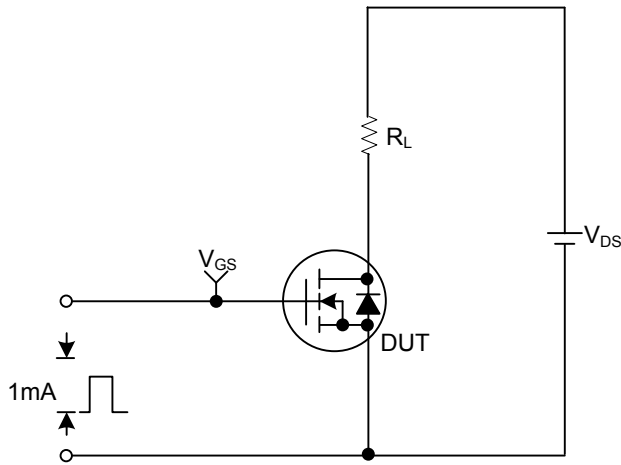
■ TEST CIRCUITS AND WAVEFORMS

Peak Diode Recovery dv/dt Test Circuit & Waveforms

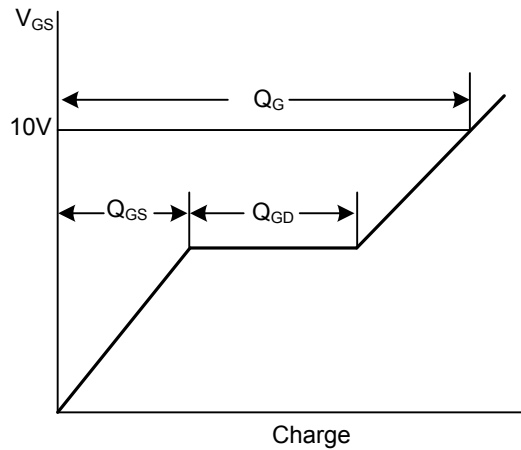


■ TEST CIRCUITS AND WAVEFORMS

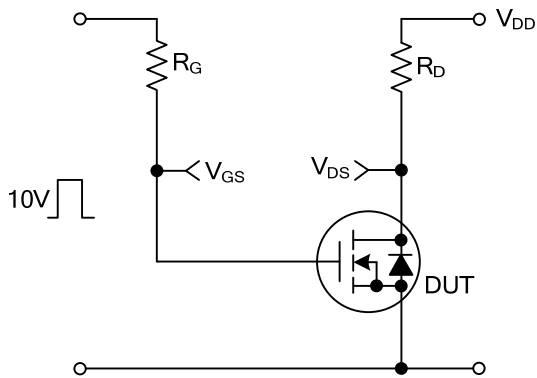
Gate Charge Test Circuit



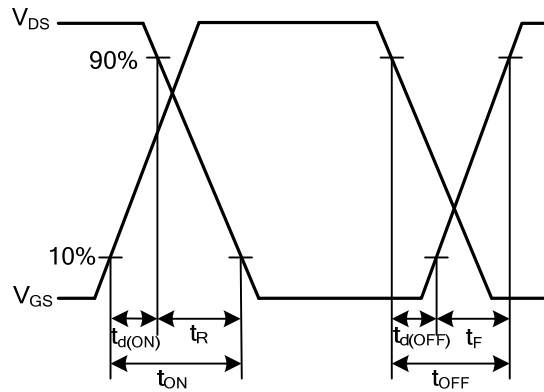
Gate Charge Waveforms



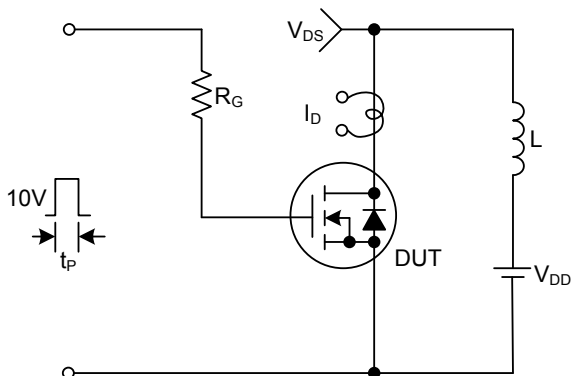
Resistive Switching Test Circuit



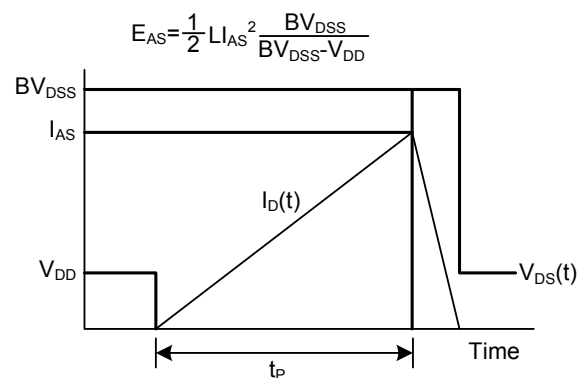
Resistive Switching Waveforms



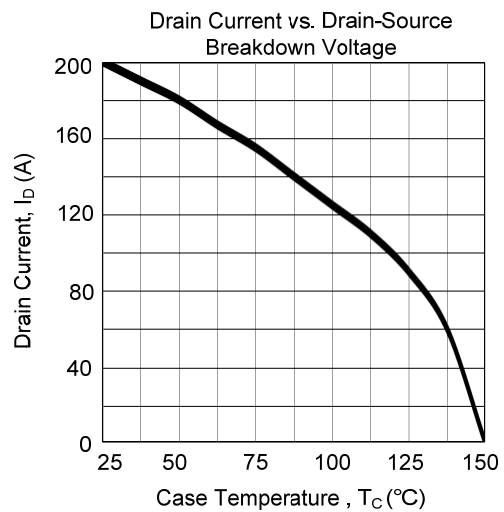
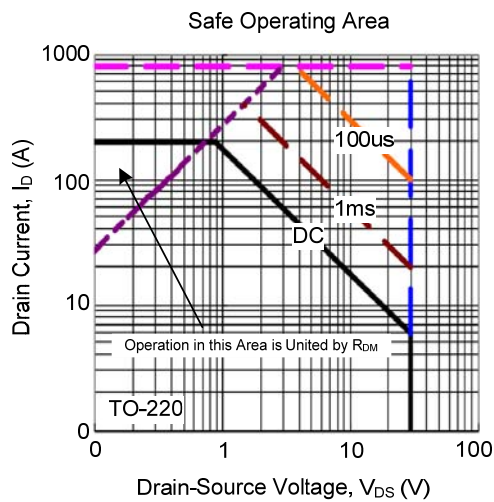
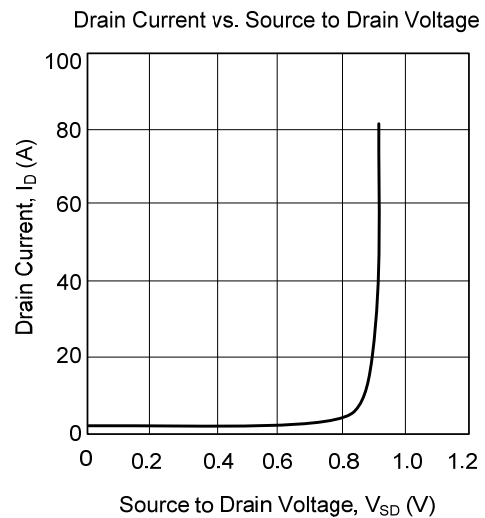
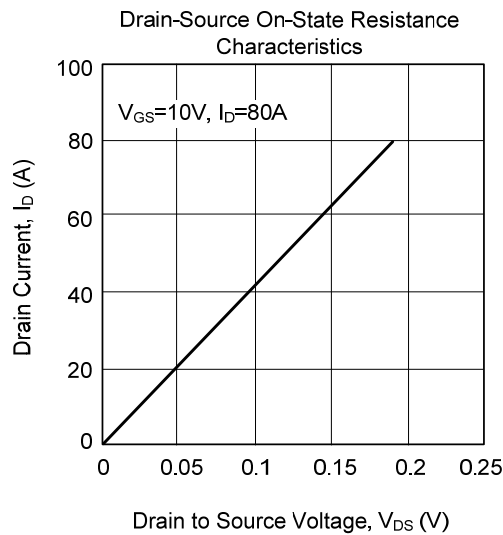
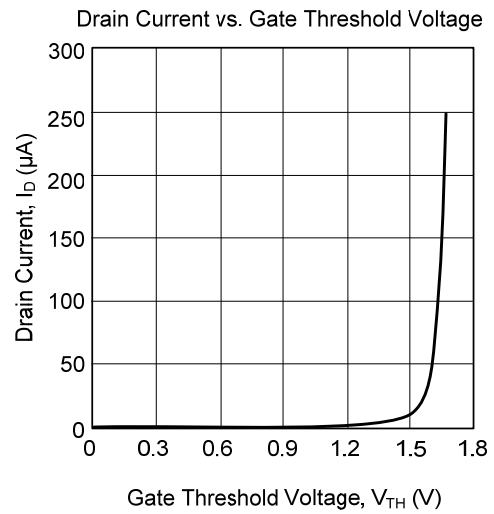
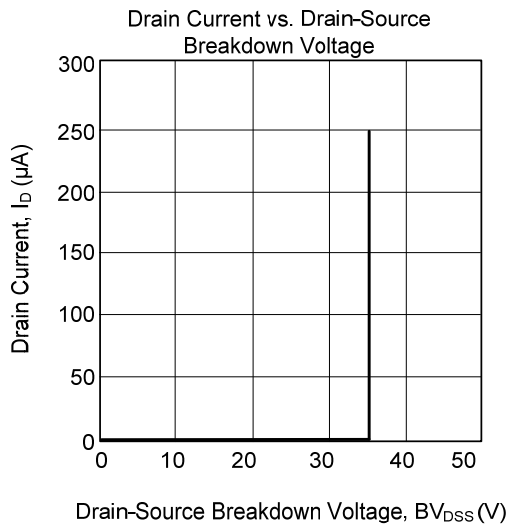
Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms



TYPICAL CHARACTERISTICS



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