



UTT80N10

Preliminary

Power MOSFET

80A, 100V N-CHANNEL POWER MOSFET

DESCRIPTION

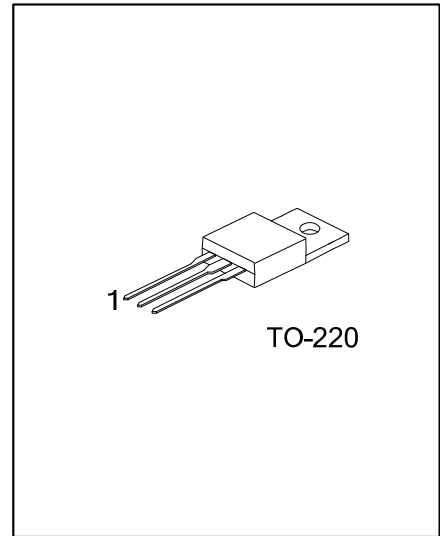
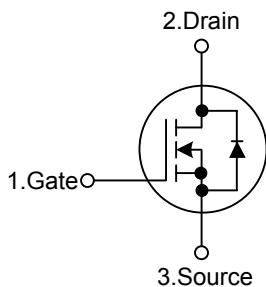
The UTC **UTT80N10** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **UTT80N10** is suitable for DC-DC converters, Off-Line UPS, High Voltage Synchronous Rectifier, Primary Switch for 48V and 24V Systems, etc.

FEATURES

- * $R_{DS(ON)}=18m\Omega @ V_{GS}=10V, I_D=80A$
- * High Switching Speed
- * High Current Capacity
- * Low Gate Charge(typical 49nC)

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT80N10L-TA3-T	UTT80N10G-TA3-T	TO-220	G	D	S	Tube

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

UTT80N10L-TA3-T 	(1) Packing Type (2) Package Type (3) Lead Free	(1) T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free
---------------------	---	---

■ 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	I_D	80	A
	Pulsed (Note 2)	I_{DM}	320	A
Single Pulsed Avalanche Energy (Note 3)	E_{AS}	416	mJ	
Power Dissipation	P_D	211	W	
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. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

3. $L = 0.13\text{mH}$, $I_{AS} = 80\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	0.59	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, 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}	$V_{DS}=80\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current		I_{GSS}			+100	nA
					-100	nA
		Reverse				
		$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$				
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	3.5	4.5	5.5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=80\text{A}$		15	18	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		4152		pF
Output Capacitance	C_{OSS}			485		pF
Reverse Transfer Capacitance	C_{RSS}			220		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10\text{V}$, $V_{DD}=50\text{V}$, $I_D=80\text{A}$		350		nC
Gate to Source Charge	Q_{GS}			23		nC
Gate to Drain Charge	Q_{GD}			16		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=50\text{V}$, $I_D=80\text{A}$, $V_{GS}=10\text{V}$, $R_G=5.0\Omega$		90		ns
Rise Time	t_R			100		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			450		ns
Fall-Time	t_F			200		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=80\text{A}$		0.99	1.25	V
Maximum Body-Diode Continuous Current	I_S				80	A
Maximum Body-Diode Pulsed Current	I_{SM}				320	A
Body Diode Reverse Recovery Time	t_{rr}	$I_S=40\text{A}$, $dI/dt=100\text{A}/\mu\text{s}$		70	105	ns
Body Diode Reverse Recovery Charge	Q_{RR}			202	303	nC

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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.