



UTT80N05

Preliminary

Power MOSFET

80A, 50V N-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **UTT80N05** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, superior switching performance and low gate charge.

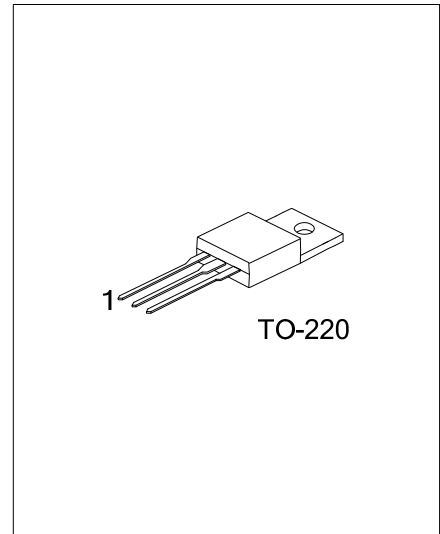
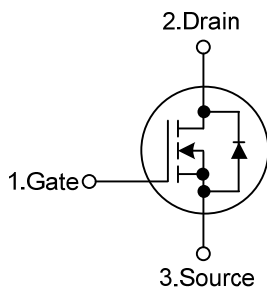
The UTC **UTT80N05** is suitable for switching regulators, DC linear mode control, automotive systems, solenoid & motor control, etc.

FEATURES

* $R_{DS(ON)} = 5.1m\Omega @ V_{GS}=10V, I_D=80A$

* High switching speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT80N05L-TA3-T	UTT80N05G-TA3-T	TO-220	G	D	S	Tube

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

UTT80N05L-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
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■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (Note 2)		V_{DSS}	50	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous ($T_C < 135^{\circ}\text{C}$, $V_{GS}=10\text{V}$)	I_D	80	A
	Pulsed	I_{DM}	320	A
Single Pulsed Avalanche Energy (Note 3)		E_{AS}	860	mJ
Power Dissipation		P_D	312	W
Derate Above 25°C			2.5	$\text{W}/^{\circ}\text{C}$
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 $T_J=25\sim 150^{\circ}\text{C}$

3. Starting $T_J=25^{\circ}\text{C}$, $L = 0.42\text{mH}$, $I_{AS} = 64\text{A}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	0.4	$^{\circ}\text{C}/\text{W}$

■ 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}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	50			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=50\text{V}$, $V_{GS}=0\text{V}$			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	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2	2.8	4	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=80\text{A}$		5.1	7	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		3565		pF
Output Capacitance	C_{OSS}			1310		pF
Reverse Transfer Capacitance	C_{RSS}			395		pF
SWITCHING PARAMETERS						
Total Gate Charge at 20V	Q_G	$V_{DD}=30\text{V}$, $I_D=80\text{A}$, $R_L=0.4\Omega$		207	269	nC
Gate to Source Charge	Q_{GS}			17.2		nC
Gate to Drain Charge	Q_{GD}			52		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=80\text{A}$, $R_L=0.4\Omega$, $V_{GS}=10\text{V}$, $R_{GS}=2.5\Omega$		12		ns
Rise Time	t_R			34		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			37		ns
Fall-Time	t_F			23		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=80\text{A}$		0.9	1.25	V

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