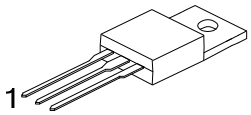
100A, 50V N-CHANNEL POWER MOSFET



TO-220

■ DESCRIPTION

The UTC **UTT100N05** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with minimum on-state resistance and superior switching performance.

■ FEATURES

* $R_{DS(ON)}$= 7mΩ @ V_{GS}=10V, I_D= 50A
  $R_{DS(ON)}$= 10mΩ @ V_{GS}=4.5V, I_D=50A
* High switching speed
* Improved dv/dt capability

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT100N05L-TA3-T	UTT100N05G-TA3-T	TO-220	G	D	S	Tube

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

UTT100N05L-TA3-T

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

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	100	A
	Pulsed	I_{DM}	400	A
Avalanche Energy	Single Pulsed	E_{AS}	875	mJ
Power Dissipation		P_D	83	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: 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.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	°C/W
Junction to Case	θ_{JC}	1.5	°C/W

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	50			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=50V, V_{GS}=0V			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
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=50A		7		mΩ
			V_{GS}=4.5V, I_D=50A		10		mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		12900		pF
Output Capacitance		C_{OSS}			1060		pF
Reverse Transfer Capacitance		C_{RSS}			700		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{DD}=50V, I_D=100A, V_{GS}=10V		500		nC
Gate to Source Charge		Q_{GS}			50		nC
Gate to Drain Charge		Q_{GD}			33		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=30V, I_D=50A, R_G=0.4Ω, V_{GS}=10V		90		ns
Rise Time		t_R			130	200	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			768		ns
Fall-Time		t_F			280	420	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S		100			A
Maximum Body-Diode Pulsed Current		I_{SM}		400			A
Drain-Source Diode Forward Voltage		V_{SD}	I_S=100A, V_{GS}=0V		1.0	1.5	V