



UTT100N05

Preliminary

Power MOSFET

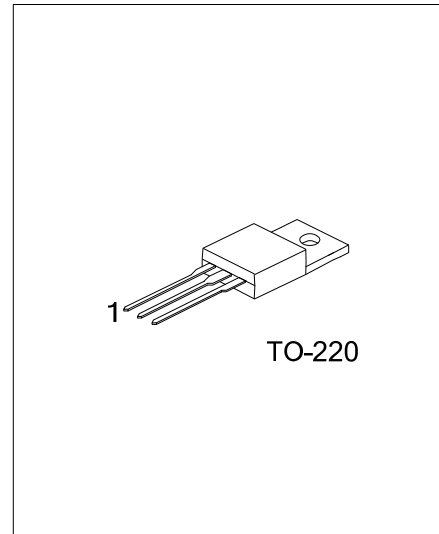
100A, 50V N-CHANNEL POWER MOSFET

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

- * $R_{DS(ON)} = 7m\Omega @ V_{GS} = 10V, I_D = 50A$
- * $R_{DS(ON)} = 10m\Omega @ V_{GS} = 4.5V, I_D = 50A$
- * 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	$^{\circ}C$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}C$

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	$^{\circ}C/W$
Junction to Case	θ_{JC}	1.5	$^{\circ}C/W$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	50			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}			+100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=50A$		7		m Ω
		$V_{GS}=4.5V, I_D=50A$		10		m Ω
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	$t_{D(ON)}$	$V_{DD}=30V, I_D=50A, R_G=0.4\Omega, V_{GS}=10V$		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

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