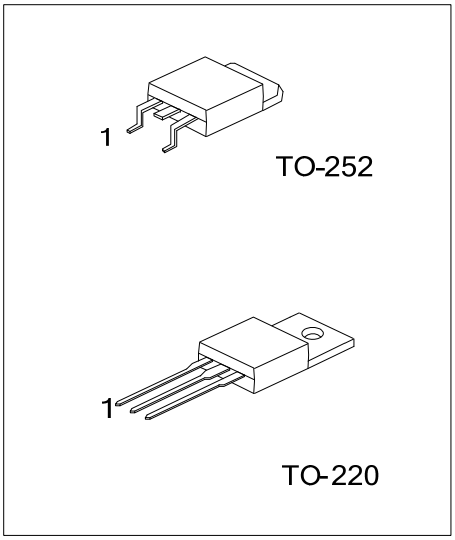
UTT20N10

Power MOSFET

20A, 100V N-CHANNEL POWER MOSFET



■ DESCRIPTION

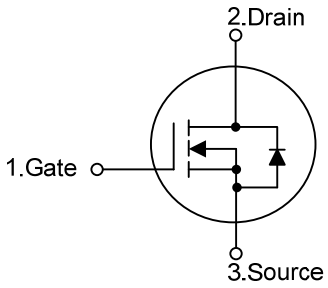
The UTC **UTT20N10** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

The UTC **UTT20N10** is universally applied in low voltage, such as automotive, high efficiency switching for DC/DC converters, and DC motor control.

■ FEATURES

* $R_{DS(on)}$ <0.12Ω @V_{GS} = 10 V
* Typically 32pF low C_{RSS}
* High switching speed
* Typically 19nC low gate charge

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT20N10L-TA3-T	UTT20N10G-TA3-T	TO-220	G	D	S	Tube
UTT20N10L-TN3-R	UTT20N10G-TN3-R	TO-252	G	D	S	Tape Reel
UTT20N10L-TN3-T	UTT20N10G-TN3-T	TO-252	G	D	S	Tube

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

UTT20N10L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TN3: TO-252 (3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25℃, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±25	V
Drain Current	Continuous	I_D	20	A
	Pulsed	I_{DM}	80	A
Power Dissipation	TO-220	P_D	62.5	W
	TO-252		50	
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-40 ~ +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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	°C/W
	TO-252		100	
Junction to Case	TO-220	θ_{JC}	2	°C/W
	TO-252		2.5	

■ ELECTRICAL CHARACTERISTICS (T_J = 25℃, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	100			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS}=+25V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-25V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=20A			120	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		600	780	pF
Output Capacitance		C_{OSS}			165	215	pF
Reverse Transfer Capacitance		C_{RSS}			32	40	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DS}=80V, I_D=19A (Note 1, 2)		19	25	nC
Gate to Source Charge		Q_{GS}			3.9		nC
Gate to Drain Charge		Q_{GD}			9.0		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=50V, I_D=1A, R_L=50Ω, V_{GS}=10V, R_G=25Ω (Note 1, 2)		7.5	25	ns
Rise Time		t_R			150	310	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			20	50	ns
Fall-Time		t_F			65	140	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				20	A
Maximum Body-Diode Pulsed Current		I_{SM}				80	A
Drain-Source Diode Forward Voltage		V_{SD}	I_S=20A, V_{GS}=0V			1.5	V

Notes: 1. Pulse Test: Pulse width≤300μs, Duty cycle≤2%
2. Essentially independent of operating temperature

■ TYPICAL CHARACTERISTICS