



# N-CHANNEL ENHANCEMENT MODE POWER MOSFET

### DESCRIPTION

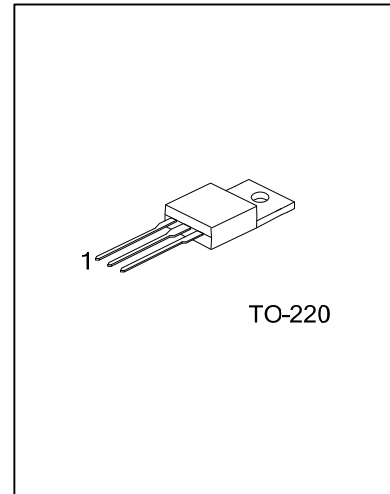
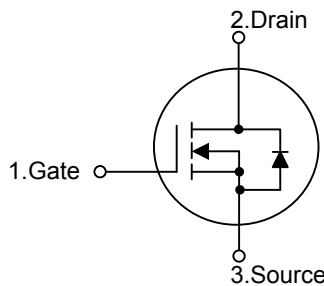
The UTC **UTT100N08** is an N-channel enhancement mode Power FET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

It also can withstand high energy pulse in the avalanche and commutation mode.

### FEATURES

- \* Fast switching speed
- \*  $R_{DS(ON)} = 7m\Omega @ V_{GS} = 10V$
- \* Work below 175°C
- \* 100% avalanche tested
- \* Improved dv/dt capability

### SYMBOL



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT100N08L-TA3-T	UTT100N08G-TA3-T	TO-220	G	D	S	Tube

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

<p>UTT100N08L-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	80	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	100
	Pulsed	I <sub>DM</sub>	400
Avalanche Energy	Single Pulsed	E <sub>AS</sub>	875
Peak Diode Recovery dv/dt	dv/dt	6	V/ns
Power Dissipation	P <sub>D</sub>	83	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	62.5	°C/W
Junction to Case	θ <sub>JC</sub>	1.5	°C/W

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	80			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			10	μA
Gate- Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V			+100	nA
		V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V			-100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		3	V
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =50A		7	12	mΩ
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHz		1500		pF
Output Capacitance	C <sub>OSS</sub>			1060		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			700		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =100A		500		nC
Gate to Source Charge	Q <sub>GS</sub>			50		nC
Gate to Drain Charge	Q <sub>GD</sub>			33		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =100A, R <sub>G</sub> =0.4Ω		90		ns
Rise Time	t <sub>R</sub>			130	200	ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			768		ns
Fall-Time	t <sub>F</sub>			280	420	ns
Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =30A	30			S
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	I <sub>S</sub>		100			A
Maximum Body-Diode Pulsed Current	I <sub>SM</sub>		400			A
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =100A, V <sub>GS</sub> =0V		1.0	1.5	V
Resistance of Gate	R <sub>G</sub>		0.65	1.3	2	Ω

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