



## UTT25N08

Preliminary

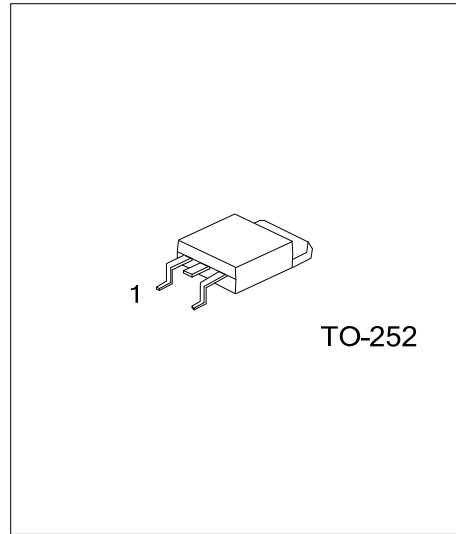
Power MOSFET

### 25A, 80V N-CHANNEL POWER MOSFET

#### DESCRIPTION

The UTC **UTT25N08** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide the customers with a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

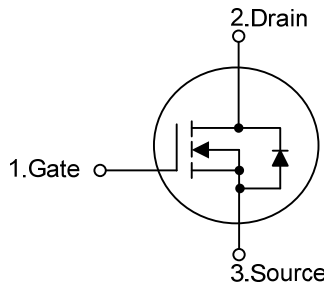
The UTC **UTT25N08** is universally applied in low voltage, such as automotive, high efficiency switching for DC/DC converters, and DC motor control.



#### FEATURES

- \*  $R_{DS(ON)} < 0.12\Omega @ V_{GS} = 10V$
- \* 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	
UTT25N08L-TN3-R	UTT25N08G-TN3-R	TO-252	G	D	S	Tape Reel
UTT25N08L-TN3-T	UTT25N08G-TN3-T	TO-252	G	D	S	Tube

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

UTT25N08L-TN3-T <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Lead Free</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) TN3: TO-252</li> <li>(3) G: Halogen Free, L: Lead Free</li> </ul>
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■ ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	80	V
Gate-Source Voltage	$V_{GSS}$	$\pm 25$	V
Drain Current	Continuous	$I_D$	25
	Pulsed	$I_{DM}$	100
Power Dissipation	$P_D$	50	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

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	$\theta_{JA}$	100	$^\circ\text{C/W}$
Junction to Case	$\theta_{JC}$	2.5	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT			
<b>OFF CHARACTERISTICS</b>									
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	80			V			
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=80\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$			
Gate- Source Leakage Current		$I_{GSS}$							
							Forward	$V_{GS}=+25\text{V}, V_{DS}=0\text{V}$	+100
						Reverse	$V_{GS}=-25\text{V}, V_{DS}=0\text{V}$	-100	nA
<b>ON CHARACTERISTICS</b>									
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0		4.0	V			
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=25\text{A}$			120	m $\Omega$			
<b>DYNAMIC PARAMETERS</b>									
Input Capacitance	$C_{ISS}$	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		600	780	pF			
Output Capacitance	$C_{OSS}$			165	215	pF			
Reverse Transfer Capacitance	$C_{RSS}$			32	40	pF			
<b>SWITCHING PARAMETERS</b>									
Total Gate Charge	$Q_G$	$V_{GS}=10\text{V}, V_{DS}=80\text{V}, I_D=25\text{A}$ (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	$t_{D(ON)}$	$V_{DD}=50\text{V}, I_D=25\text{A}, R_L=50\Omega,$ $V_{GS}=10\text{V}, R_G=25\Omega$ (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			
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>									
Maximum Body-Diode Continuous Current	$I_S$				25	A			
Maximum Body-Diode Pulsed Current	$I_{SM}$				100	A			
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=25\text{A}, V_{GS}=0\text{V}$			1.5	V			

Notes: 1. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$   
2. Essentially independent of operating temperature

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