



**N-CHANNEL 80V (D-S) MOSFET**

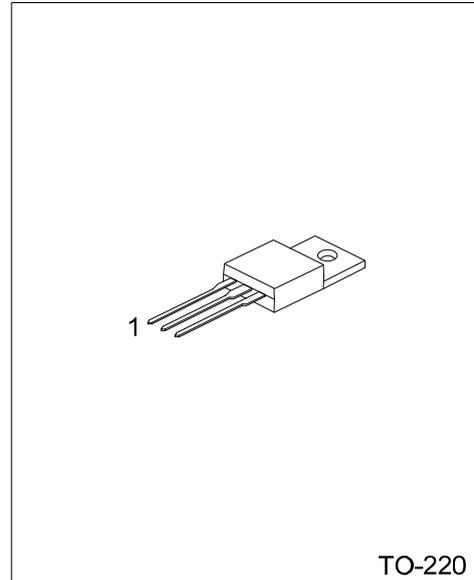
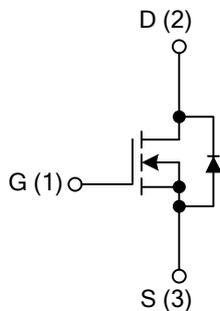
■ DESCRIPTION

The UTC **80N08** is an N-channel MOSFET using UTC trench technology. It can be used in applications, such as power supply (secondary synchronous rectification), industrial and primary switch etc.

■ FEATURES

- \* Trench FET Power MOSFETS Technology
- \* 100 % R<sub>G</sub> and UIS Tested

■ SYMBOL



TO-220

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
80N08L-TA3-R	80N08G-TA3-R	TO-220	G	D	S	Tube

Note: G: GND, D: Drain, S: Source

<p>80N08G-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Halogen 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 ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Continuous Drain Current (Note 1)	$I_D$	$T_C = 25^\circ\text{C}$ , $V_{GS} = 10\text{V}$	80	A
		$T_C = 100^\circ\text{C}$ , $V_{GS} = 10\text{V}$ (Note 2)	80	
Pulsed Drain Current (Note 2)	$I_{D,pulse}$	$T_C = 25^\circ\text{C}$	320	A
Avalanche Energy, Single Pulse (Note 2)	$E_{AS}$	$I_D = 80\text{A}$	810	mJ
Gate Source Voltage (Note 3)	$V_{GS}$		$\pm 20$	V
Power Dissipation	$P_{TOT}$	$T_C = 25^\circ\text{C}$	300	W
Junction Temperature	$T_J$		+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$		-55 ~ +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	$\theta_{JA}$	62	K/W
Junction to Case	$\theta_{JC}$	0.5	K/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	$BV_{DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0\text{V}$	80			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = 75\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 25^\circ\text{C}$		0.01	1	$\mu\text{A}$
		$V_{DS} = 75\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 125^\circ\text{C}$ <sup>2</sup>		1	100	
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{V}$ , $V_{GS} = 20\text{V}$		1	100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	2.1	3.0	4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{V}$ , $I_D = 80\text{A}$			12	m $\Omega$
<b>DYNAMIC PARAMETERS (Note 2)</b>						
Input Capacitance	$C_{ISS}$	$V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1.0\text{MHz}$		4700		pF
Output Capacitance	$C_{OSS}$			1260		pF
Reverse Transfer Capacitance	$C_{RSS}$			580		pF
<b>SWITCHING PARAMETERS (Note 2)</b>						
Gate to Source Charge	$Q_{GS}$	$V_{DD} = 60\text{V}$ , $V_{GS} = 0 \sim 10\text{V}$ , $I_D = 80\text{A}$		25	37	nC
Gate to Drain Charge	$Q_{GD}$			69	116	nC
Total Gate Charge	$Q_G$			144	180	nC
Gate Plateau Voltage	$V_{plateau}$			5.4		V
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD} = 40\text{V}$ , $R_G = 2.2\Omega$ $I_D = 80\text{A}$ , $V_{GS} = 10\text{V}$		26		ns
Rise Time	$t_R$			50		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			61		ns
Fall-Time	$t_F$			30		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	$I_S$	$T_C = 25^\circ\text{C}$ (Note 2)			80	A
Pulsed Current	$I_{S,pulse}$				320	
Drain-Source Diode Forward Voltage (Note1)	$V_{SD}$	$I_F = 80\text{A}$ , $V_{GS} = 0\text{V}$ , $T_J = 25^\circ\text{C}$		0.9	1.3	V
Reverse Recovery Time (Note 2)	$t_{RR}$	$I_F = I_S$ , $dI_F/dt = 100\text{A}/\mu\text{s}$		110	140	ns
Reverse Recovery Charge (Note 2)	$Q_{RR}$	$V_R = 40\text{V}$		470	590	nC

Note: 1. Current is limited by bondwire; with an  $\theta_{JC} = 0.5\text{K/W}$  the chip is able to carry 132A at  $25^\circ\text{C}$ .

2. Defined by design. Not subject to production test.

3. Qualified at -20V and +20V.

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