



## 80N08

Power MOSFET

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

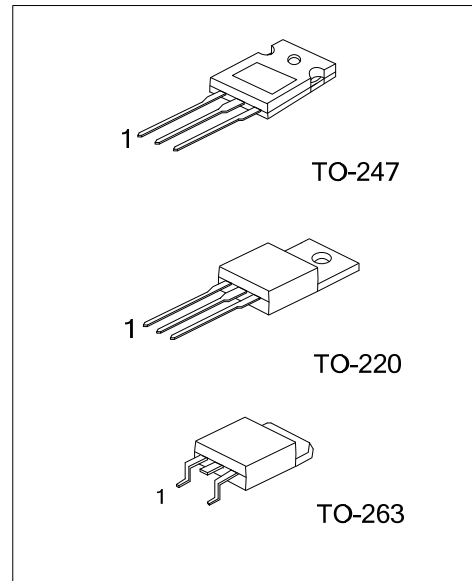
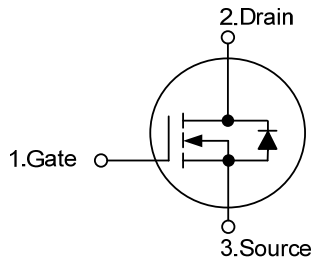
#### DESCRIPTION

The UTC **80N08** is an N-channel MOSFET using UTC advanced 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

#### SYMBOL



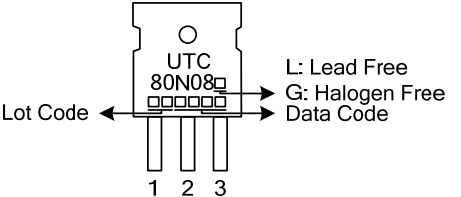
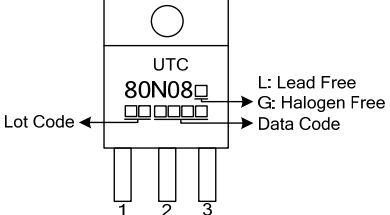
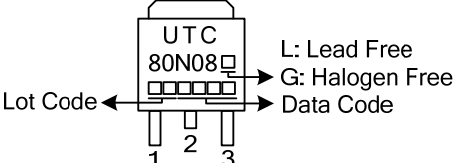
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
80N08L-T47-T	80N08G-T47-T	TO-247	G	D	S	Tube
80N08L-TA3-T	80N08G-TA3-T	TO-220	G	D	S	Tube
80N08L-TQ2-T	80N08G-TQ2-T	TO-263	G	D	S	Tube
80N08L-TQ2-R	80N08G-TQ2-R	TO-263	G	D	S	Tape Reel

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

<p>80N08L-T47-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Halogen Free</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) T47: TO-247, TA3: TO-220, TQ2: TO-263</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ MARKING INFORMATION

PACKAGE	MARKING
TO-247	 <p>The diagram shows a TO-247 package with three leads labeled 1, 2, and 3. The top surface is marked with 'UTC', '80N08', and a data code consisting of five small squares. An arrow labeled 'Lot Code' points to the left side of the package. To the right, three arrows point to the data code with labels: 'L: Lead Free', 'G: Halogen Free', and 'Data Code'.</p>
TO-220	 <p>The diagram shows a TO-220 package with three leads labeled 1, 2, and 3. The top surface is marked with 'UTC', '80N08', and a data code consisting of five small squares. An arrow labeled 'Lot Code' points to the left side of the package. To the right, three arrows point to the data code with labels: 'L: Lead Free', 'G: Halogen Free', and 'Data Code'.</p>
TO-263	 <p>The diagram shows a TO-263 package with three leads labeled 1, 2, and 3. The top surface is marked with 'UTC', '80N08', and a data code consisting of five small squares. An arrow labeled 'Lot Code' points to the left side of the package. To the right, three arrows point to the data code with labels: 'L: Lead Free', 'G: Halogen Free', and 'Data Code'.</p>

■ ABSOLUTE MAXIMUM RATINGS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Gate Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	80	A
Pulsed Drain Current	$I_{DM}$	320	A
Avalanche Energy, Single Pulse	$E_{AS}$	810	mJ
Power Dissipation	TO-247	300	W
	TO-220/TO-263	250	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.

$L=0.1\text{mH}$ ,  $I_{AS}=80\text{A}$ ,  $V_{DD}=25\text{V}$ ,  $R_G=20\Omega$ , Starting  $T_J=25^\circ\text{C}$ .

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-247	30	$^\circ\text{C/W}$
	TO-220/TO-263	62	
Junction to Case	TO-247	0.42	$^\circ\text{C/W}$
	TO-220/TO-263	0.5	

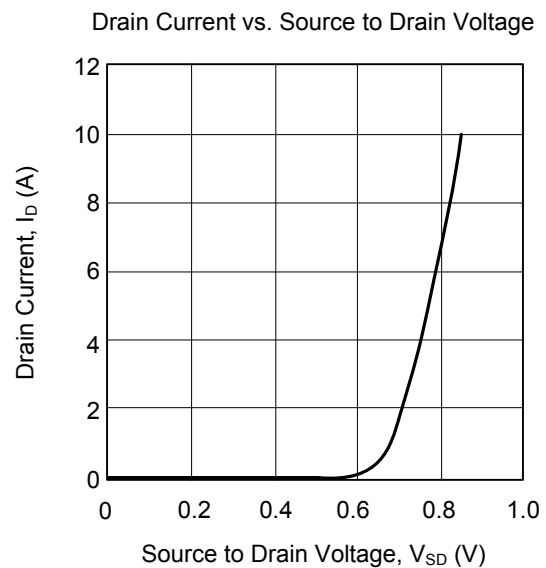
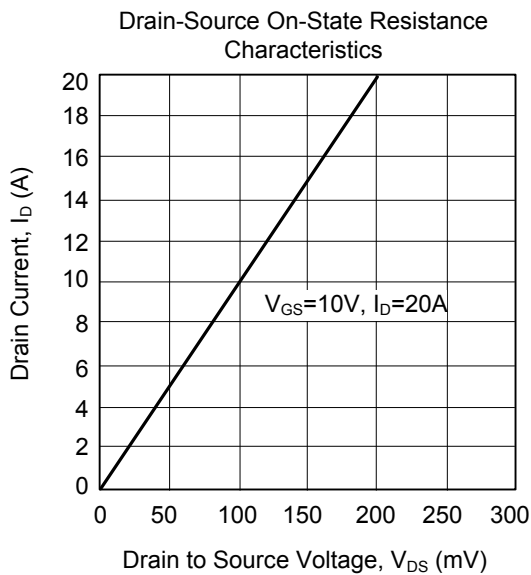
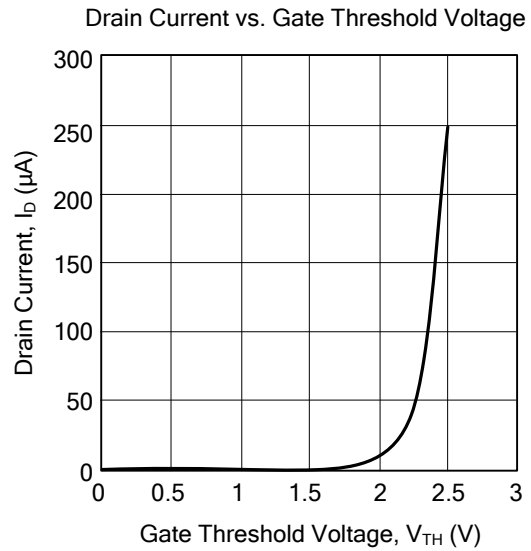
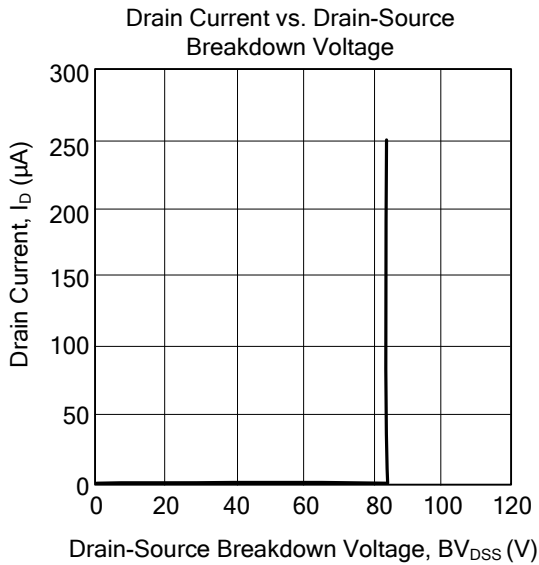
■ ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

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	$I_{DSS}$	$V_{DS}=80\text{V}$ , $V_{GS}=0\text{V}$ , $T_J=25^\circ\text{C}$		0.01	1	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$		$\pm 1$	$\pm 100$	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</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</b>						
Total Gate Charge	$Q_G$			144	180	nC
Gate to Source Charge	$Q_{GS}$			25	37	nC
Gate to Drain Charge	$Q_{GD}$			69	116	nC
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	$I_S$				80	A
Pulsed Current	$I_{SM}$				320	
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_{SD}=80\text{A}$		0.9	1.3	V
Reverse Recovery Time	$t_{RR}$	$I_F=I_S$ , $di_F/dt=100\text{A}/\mu\text{s}$		110	140	ns
Reverse Recovery Charge	$Q_{RR}$	$V_R=40\text{V}$		470	590	nC

Note: 1. Defined by design. Not subject to production test.

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

## TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.