



# 80N08

**Power MOSFET**

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

■ DESCRIPTION

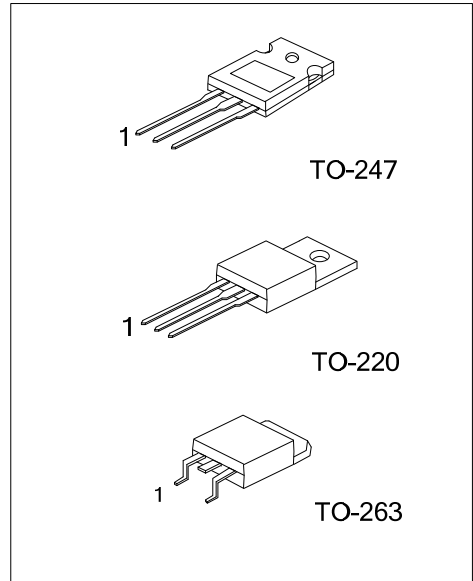
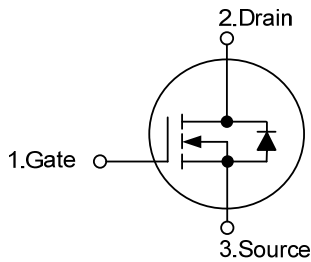
The UTC **80N08** is an N-channel MOSFET using UTC advanced technology.

The UTC **80N08** is suitable for power supply (secondary synchronous rectification), industrial and primary switch etc.

■ FEATURES

\*  $R_{DS(on)} < 12\text{ m}\Omega @ V_{GS}=10V, I_D=80A$

■ SYMBOL



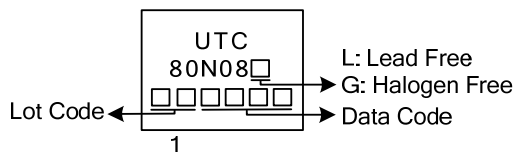
■ ORDERING INFORMATION

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)Green Package</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 and Lead Free</p>
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■ MARKING



■ 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		$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	Continuous	$I_D$	80	A
Pulsed Drain Current	Pulsed (Note 2)	$I_{DM}$	320	A
Avalanche Current (Note 3)		$I_{AR}$	80	A
Avalanche energy	Single Pulsed (Note 3)	$E_{AS}$	320	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	5.2	V/nS
Power Dissipation	TO-247	$P_D$	300	W
	TO-220/TO-263		250	W
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature Range		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Notes: 1. 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.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.

3.  $L=0.1\text{mH}$ ,  $I_{AS}=80\text{A}$ ,  $V_{DD}=50\text{V}$ ,  $R_G=25\Omega$ , Starting  $T_J = 25^\circ\text{C}$ .

4.  $I_{SD} \leq 30\text{A}$ ,  $di/dt \leq 200\text{A}/\mu\text{s}$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J = 25^\circ\text{C}$ .

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-247	$\theta_{JA}$	30	$^\circ\text{C}/\text{W}$
	TO-220/TO-263		62.5	
Junction to Case	TO-247	$\theta_{JC}$	0.42	$^\circ\text{C}/\text{W}$
	TO-220/TO-263		0.5	

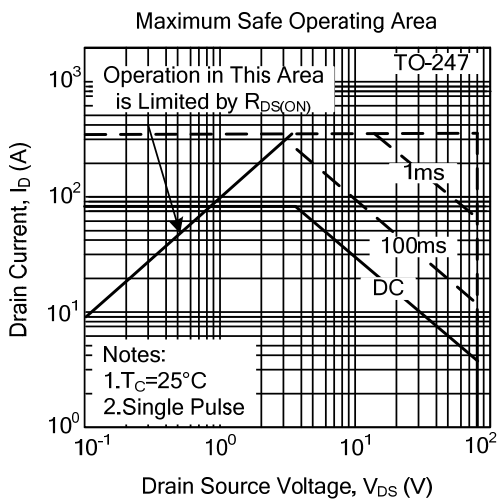
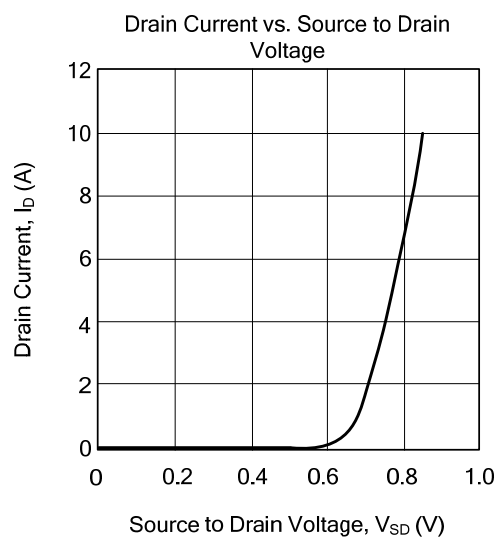
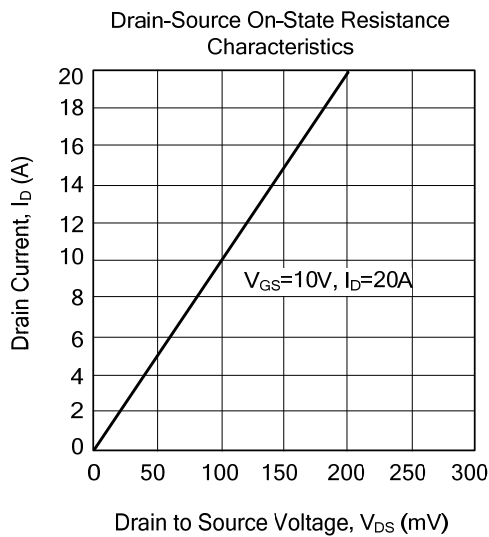
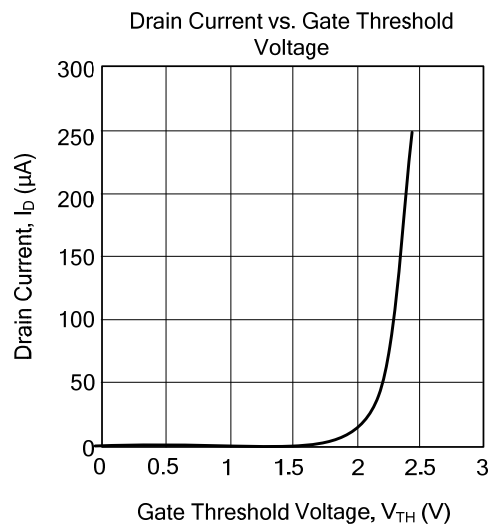
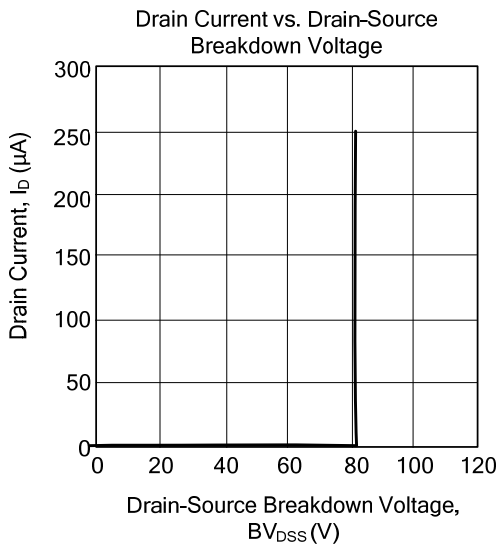
■ ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

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	$I_{DSS}$	$V_{DS}=80\text{V}$ , $V_{GS}=0\text{V}$ , $T_J=25^\circ\text{C}$			1	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	2.1		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	$C_{ISS}$	$V_{GS}=0\text{V}$ , $V_{DS}=25\text{V}$ , $f=1.0\text{MHz}$		3500		pF
Output Capacitance	$C_{OSS}$			690		pF
Reverse Transfer Capacitance	$C_{RSS}$			41		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge (Note 1)	$Q_G$	$V_{DS}=50\text{V}$ , $I_D=1.3\text{A}$ , $V_{GS}=10\text{V}$ $I_G=100\mu\text{A}$ (Note1, 2)		190		nC
Gate to Source Charge	$Q_{GS}$			26		nC
Gate to Drain Charge	$Q_{GD}$			43.5		nC
Turn-ON Delay Time (Note 1)	$t_{D(ON)}$	$V_{DD}=30\text{V}$ , $I_D=0.5\text{A}$ , $R_G=25\Omega$ , $V_{GS}=0\text{V}$ (Note1, 2)		185		ns
Rise Time	$t_R$			278		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			770		ns
Fall-Time	$t_F$			297		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	$I_S$				80	A
Maximum Body-Diode Pulsed Current	$I_{SM}$				320	
Drain-Source Diode Forward Voltage (Note 1)	$V_{SD}$	$I_S=80\text{A}$ , $V_{GS}=0\text{V}$			1.3	V
Body Diode Reverse Recovery Time (Note 1)	$t_{rr}$	$I_S=30\text{A}$ , $V_{GS}=0\text{V}$		70		ns
Body Diode Reverse Recovery Charge	$Q_{rr}$	$dI_F/dt=100\text{A}/\mu\text{s}$		180		nC

Note: 1. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$

2. Essentially independent of operating temperature.

## TYPICAL CHARACTERISTICS



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