



80N08

Power MOSFET

80A, 80V N-CHANNEL POWER MOSFET

DESCRIPTION

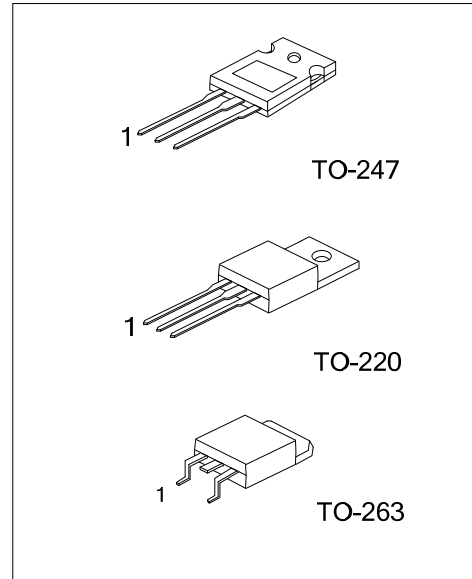
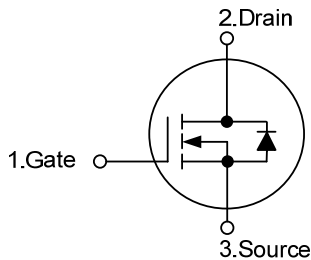
The UTC **80N08** is an N-channel MOSFET using UTC advanced technology.

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

FEATURES

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

SYMBOL



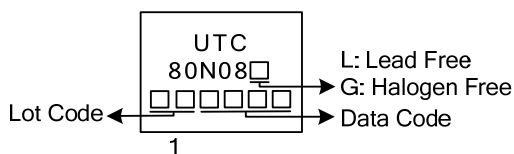
ORDERING INFORMATION

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}	± 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	θ_{JA}	30	$^\circ\text{C}/\text{W}$
	TO-220/TO-263		62.5	
Junction to Case	TO-247	θ_{JC}	0.42	$^\circ\text{C}/\text{W}$
	TO-220/TO-263		0.5	

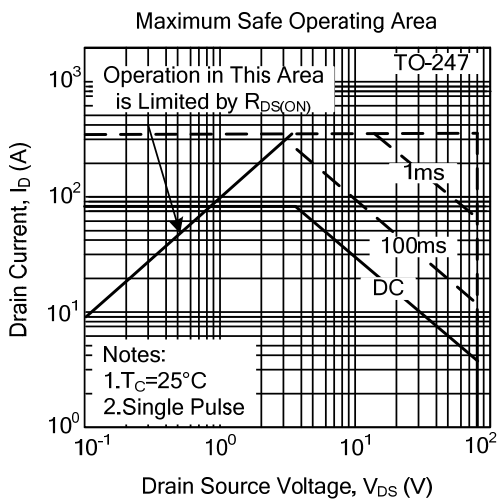
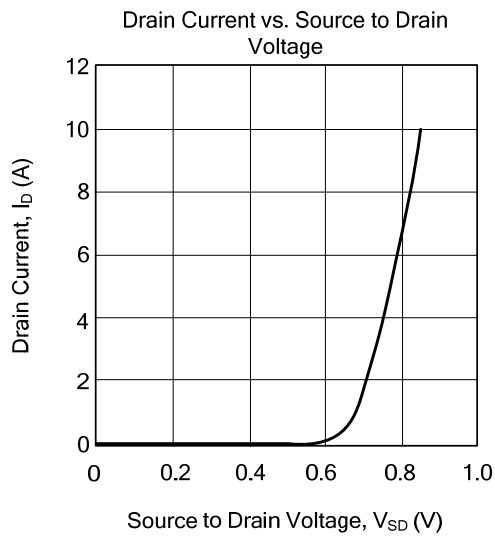
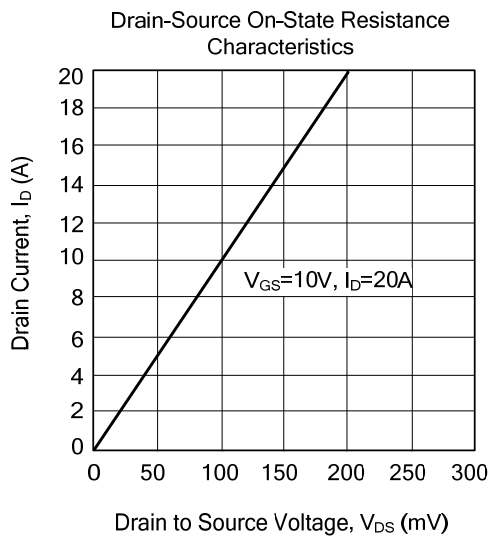
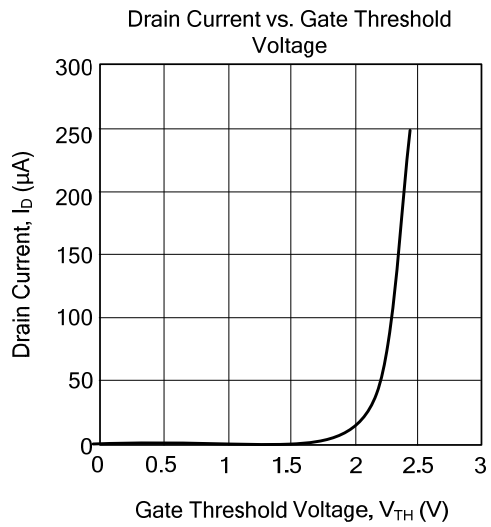
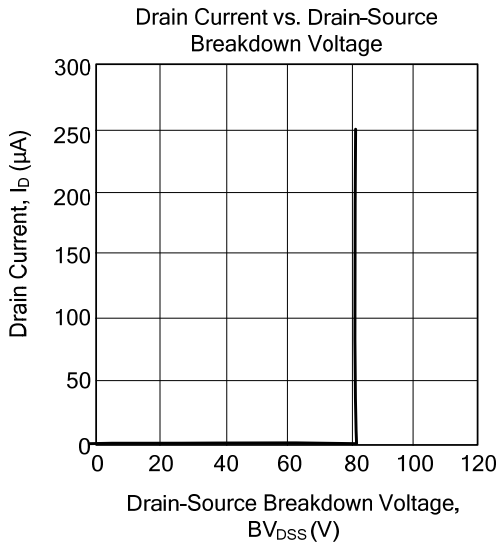
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
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	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
ON CHARACTERISTICS						
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 Ω
DYNAMIC PARAMETERS						
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
SWITCHING PARAMETERS						
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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
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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