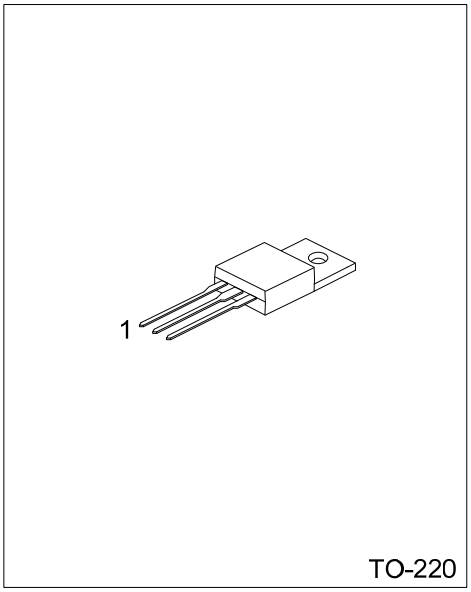
N-CHANNEL 80V (D-S) MOSFET



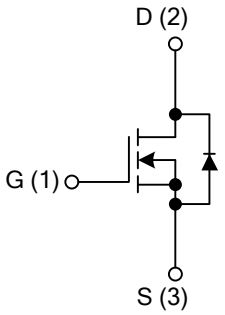
■ DESCRIPTION

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_G and UIS Tested

■ SYMBOL



■ 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

80N08G-TA3-T (1)Packing Type (2)Package Type (3)Halogen Free	(1) T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS (T_J= 25 °C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Continuous Drain Current (Note 1)	I_D	T_C=25 °C, V_{GS}=10 V	80	A
		T_C=100 °C, V_{GS}=10 V (Note 2)	80	
Pulsed Drain Current (Note 2)	$I_{D,pulse}$	T_C=25 °C	320	A
Avalanche Energy, Single Pulse (Note 2)	E_{AS}	I_D=80A	810	mJ
Gate Source Voltage (Note 3)	V_{GS}		±20	V
Power Dissipation	P_{TOT}	T_C=25 °C	300	W
Junction Temperature	T_J		+150	°C
Storage Temperature	T_{STG}		-55 ~ +150	°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	θ_{JA}	62	K/W
Junction to Case	θ_{JC}	0.5	K/W

■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=1mA, V_{GS}=0V	80			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=75V, V_{GS}=0V, T_J=25°C		0.01	1	μA
		V_{DS}=75V, V_{GS}=0V, T_J=125°C [2]		1	100	
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=20V		1	100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2.1	3.0	4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=80A			12	mΩ
DYNAMIC PARAMETERS (Note 2)						
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		4700		pF
Output Capacitance	C_{OSS}			1260		pF
Reverse Transfer Capacitance	C_{RSS}			580		pF
SWITCHING PARAMETERS (Note 2)						
Gate to Source Charge	Q_{GS}	V_{DD}=60V, V_{GS}=0~10V, I_D=80A		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}=40V, R_G=2.2Ω, I_D=80A, V_{GS}=10V		26		ns
Rise Time	t_R			50		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			61		ns
Fall-Time	t_F			30		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S	T_C=25°C (Note 2)			80	A
Pulsed Current	$I_{S,\ pulse}$				320	
Drain-Source Diode Forward Voltage (Note1)	V_{SD}	I_F=80A, V_{GS}=0V, T_J=25°C		0.9	1.3	V
Reverse Recovery Time (Note 2)	t_{RR}	I_F= I_S, dI_F/dt=100A/μs, V_R=40V		110	140	ns
Reverse Recovery Charge (Note 2)	Q_{RR}			470	590	nC

Note: 1. Current is limited by bondwire; with an θ_{JC}= 0.5K/W the chip is able to carry 132A at 25°C.
2. Defined by design. Not subject to production test.
3. Qualified at -20V and +20V.