



11N80

Preliminary

Power MOSFET

**11A, 812V N-CHANNEL
POWER MOSFET**

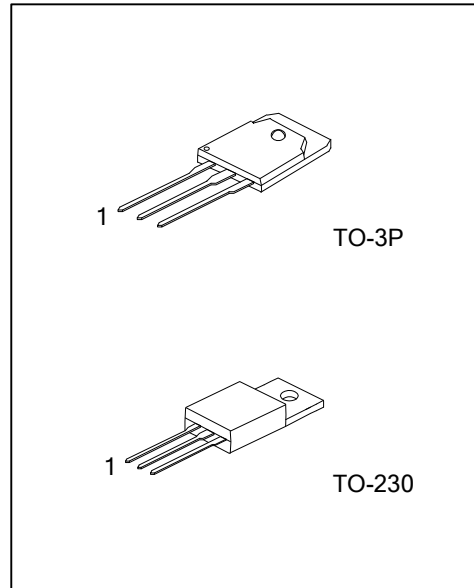
■ DESCRIPTION

The **UTC 11N80** is an N-Channel power MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and high switching speed.

The **UTC 11N80** is suitable for high speed switching applications in power supplies, PWM motor controls, high efficient DC to DC converters and bridge circuits.

■ FEATURES

- * $R_{DS(ON)} < 0.9\Omega @ V_{GS}=10V$
- * Low gate charge (typical 60 nC)
- * High switching speed



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
11N80L-T3P-T	11N80G-T3P-T	TO-3P	G	D	S	Tube
11N80L-TC3-T	11N80G-TC3-T	TO-230	G	D	S	Tube

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

<p>11N80L-T3P-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) T3P: TO-3P, TC3: TO-230</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ MARKING INFORMATION

PACKAGE	MARKING
TO-3P TO-230	<p>Lot Code ←</p> <p>→ Data Code</p> <p>1</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	800	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	Continuous	I_D	11	A
	Pulsed	I_{DM}	11	A
Avalanche Current		I_{AR}	44	A
Avalanche Energy	Single Pulsed	E_{AS}	960	mJ
	Repetitive	E_{AR}	12	mJ
Peak Diode Recovery dv/dt		dv/dt	4.0	V/ns
Power Dissipation ($T_C=25^\circ\text{C}$)	TO-3P	P_D	297	W
	TO-230		156	
Junction Temperature		T_J	-55~+150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55~+150	$^\circ\text{C}$

Note: 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. $L=15\text{mH}$, $I_{AS}=11.7\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$ starting $T_C=25^\circ\text{C}$.

■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-3P	θ_{JA}	40	$^\circ\text{C/W}$
	TO-230		62.5	
Junction to Case	TO-3P	θ_{JC}	0.42	$^\circ\text{C/W}$
	TO-230		0.80	

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	800			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, $I_D=250\mu A$		1.0		V/°C
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$			10	μA
Gate-Source Leakage Current	Forward	$V_{GS}=+30V, V_{DS}=0V$			+100	nA
	Reverse	$V_{GS}=-30V, V_{DS}=0V$			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3		5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5.5A$			0.9	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$		2530	3290	pF
Output Capacitance	C_{OSS}			215	280	pF
Reverse Transfer Capacitance	C_{RSS}			23	30	pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10V, V_{DD}=640V, I_D=11A, R_G=25\Omega$		60	80	nC
Gate to Source Charge	Q_{GS}			13		nC
Gate to Drain Charge	Q_{GD}			25		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=400V, I_D=11A, R_G=25\Omega, V_{GS}=10V$		60	130	ns
Rise Time	t_R			130	270	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			130	270	ns
Fall-Time	t_F			85	180	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				11	A
Maximum Body-Diode Pulsed Current	I_{SM}				44	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=11.0A, V_{GS}=0V$			1.4	V
Body Diode Reverse Recovery Time	t_{RR}	$V_{GS}=0V, I_S=11A, dI_F/dt=100A/\mu S$		1000		ns
Body Diode Reverse Recovery Charge	Q_{RR}			170		μC

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