



18N60

Preliminary

Power MOSFET

POLARHV HIPERFET POWER MOSFET

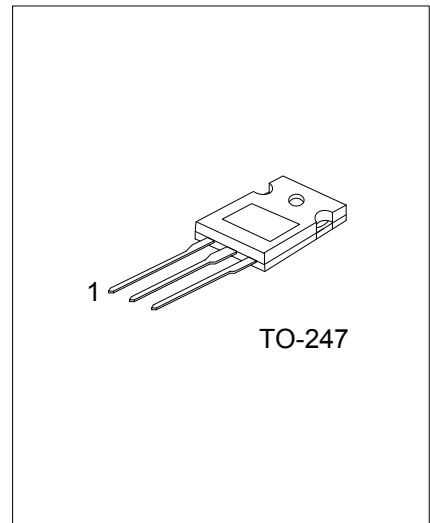
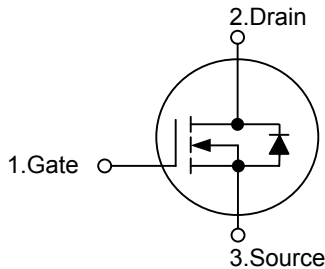
DESCRIPTION

The UTC **18N60** uses UTC's advanced proprietary, planar stripe, DMOS technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} \leq 400m\Omega @ V_{GS} = 10V$
- * Ultra low gate charge (typical 50nC)
- * Low reverse transfer capacitance ($C_{RSS} =$ typical 23pF)
- * Fast switching capability
- * Avalanche energy specified
- * Improved dv/dt capability, high ruggedness

SYMBOL



Lead-free: 18N60L
 Halogen-free : 18N60G

ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
18N60-T47-T	18N60L-T47-T	18N60G-T47-T	TO-247	G	D	S	Tube

<p>18N60L-T47-T</p>	<p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) T: Tube (2) T47: TO-247 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	600	V
Gate-Source Voltage	V_{GSS}	± 30	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current	I_{DM}	45	A
Avalanche Current	I_{AR}	18	A
Avalanche Energy	Single Pulsed	E_{AS}	1000
	Repetitive	E_{AR}	30
Peak Diode Recovery dv/dt	dv/dt	10	V/ns
Power Dissipation	P_D	360	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.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Case	θ_{JC}			0.35	$^\circ\text{C}/\text{W}$

■ 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}	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	600			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0\text{V}$			25	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 30\text{V}$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=0.5I_{D25}$ (Note 1)			400	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		2500		pF
Output Capacitance	C_{OSS}			280		pF
Reverse Transfer Capacitance	C_{RSS}			23		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=0.5V_{DSS}, I_D=I_{D25}, R_G=5\Omega$ (External)		21		ns
Turn-ON Rise Time	t_R			22		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			62		ns
Turn-OFF Fall-Time	t_F			22		ns
Total Gate Charge	Q_G	$V_{GS}=10\text{V}, V_{DS}=0.5V_{DSS}, I_D=0.5I_{D25}$		50		nC
Gate Source Charge	Q_{GS}			15		nC
Gate Drain Charge	Q_{GD}			18		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_F=I_S, V_{GS}=0\text{V}$ (Note 1)			1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S	$V_{GS}=0\text{V}$			18	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	Repetitive			54	A
Reverse Recovery Time	t_{RR}	$V_{GS}=0\text{V}, di/dt=100\text{A/s}, I_S=18\text{A}, V_R=100\text{V}$			200	ns
Reverse Recovery Charge	Q_{RR}			0.8		μC

Note 1. Pulse Test: Pulse Width ≤ 300 s, Duty Cycle $\leq 2\%$.

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