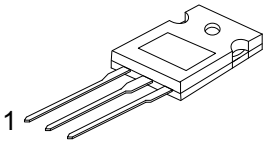
POLARHV HIPERFET POWER MOSFET



TO-247

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

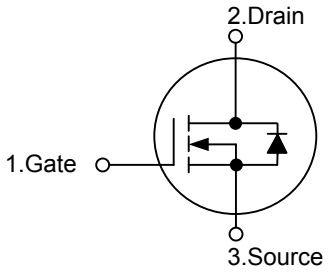
■ DESCRIPTION

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} = 10 V
* 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



■ 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

18N60L-T47-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) T: Tube (2) T47: TO-247 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATINGS (T_C =25℃, 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	mJ
	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	°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	MIN	TYP	MAX	UNIT
Junction-to-Case	θ_{JC}			0.35	℃/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}	V_{GS}=0V, I_D=250μA	600			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=V_{DSS}, V_{GS}=0V			25	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=0.5I_{D25} (Note 1)			400	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=25V, V_{GS}=0V, f=1MHz		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}=10V, V_{DS}=0.5V_{DSS}, I_D=I_{D25}, R_G=5Ω (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}=10V, 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}=0V (Note 1)			1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S	V_{GS}=0V			18	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	Repetitive			54	A
Reverse Recovery Time	t_{RR}	V_{GS}=0V, di/dt=100A/s, I_S=18A, V_R=100V			200	ns
Reverse Recovery Charge	Q_{RR}			0.8		μC

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