



18N40

Power MOSFET

400V N-CHANNEL POWER MOSFET

DESCRIPTION

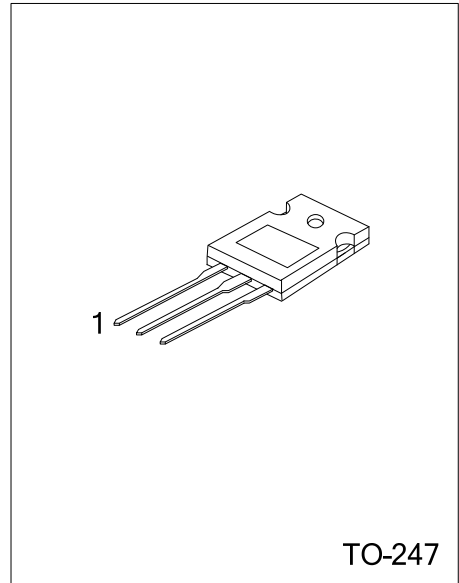
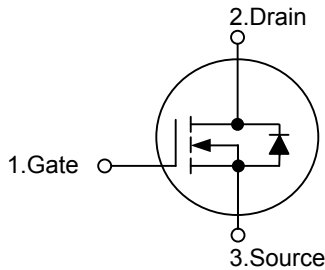
The UTC **18N40** is a 400V N-channel Power MOSFET, providing customers with perfect $R_{DS(ON)}$, low gate charge and operation with low gate voltages.

The UTC **18N40** is generally used as a load switch or applied in PWM applications.

FEATURES

- * $R_{DS(ON)} \leq 408m\Omega @ V_{GS} = 10 V$
- * Ultra Low Gate Charge: 50nC (TYP.)
- * Low Reverse Transfer ($C_{RSS} = \text{typical } 23pF$)
- * Fast Switching Speed
- * Avalanche Energy Specified
- * Improved dv/dt Capability, High Ruggedness

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
18N40L-T47-T	18N40G-T47-T	TO-247	G	D	S	Tube

<p>18N40G-T47-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Halogen Free</p>	<p>(1) T: Tube</p> <p>(2) T47: TO-247</p> <p>(3) G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T_C =25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	400	V
Gate-Source Voltage	V _{GSS}	±30	V
Drain Current	Continuous	I _D	18
	Pulsed	I _{DM}	45
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	°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

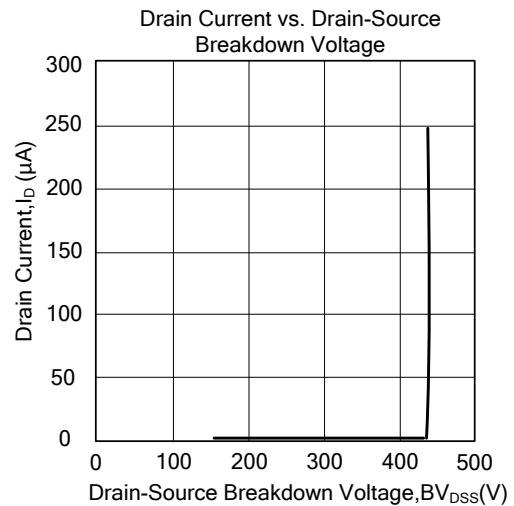
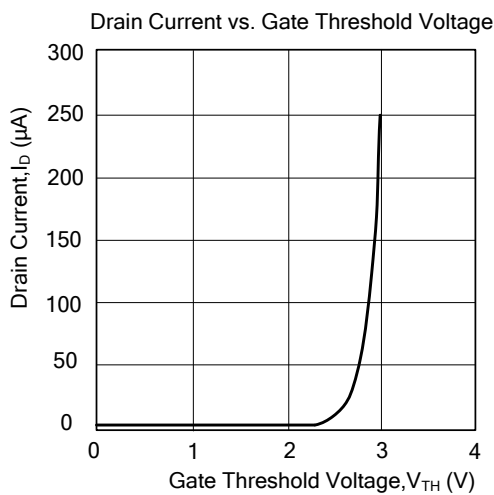
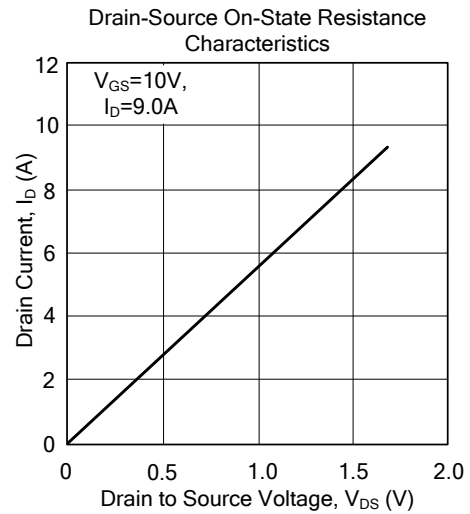
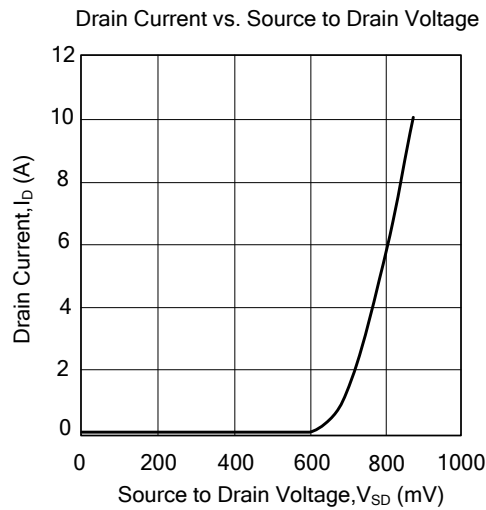
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ _{JC}	0.35	°C/W

■ 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	400			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =400V, 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 =9A (Note)			200	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						
Total Gate Charge	Q _G	V _{GS} =10V, V _{DS} =0.5V _{DSS} , I _D =18A, R _G =5Ω (External)		50		nC
Gate Source Charge	Q _{GS}			15		nC
Gate Drain Charge	Q _{GD}			18		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DS} =0.5V _{DSS} , I _D =9A		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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _F =I _S , V _{GS} =0V (Note)			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 _F /dt=100A/μs,			200	ns
Reverse Recovery Charge	Q _{RR}	I _S =18A, V _R =100V		0.8		μC

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

TYPICAL CHARACTERISTICS



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