



18N40

Power MOSFET

18A, 400V N-CHANNEL POWER MOSFET

■ DESCRIPTION

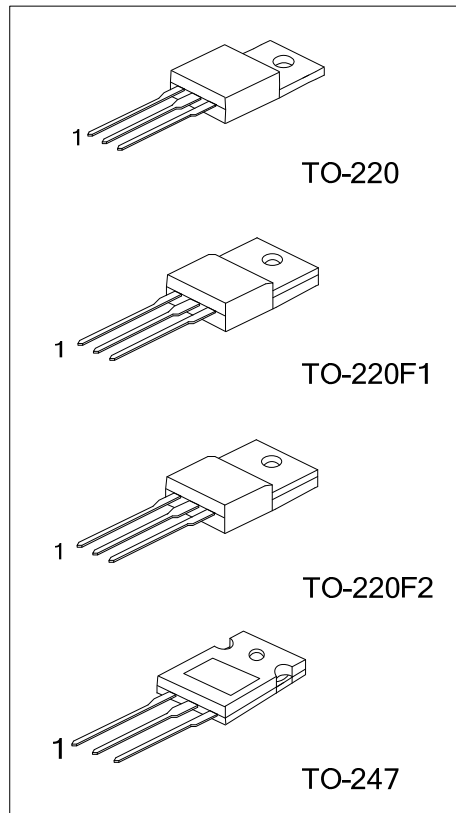
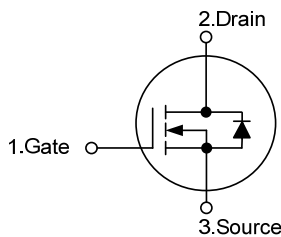
The UTC **18N40** is a 400V N-channel power MOSFET, providing customers with perfect $R_{DS(ON)}$, low gate charge and operation with low gate voltages.

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

■ FEATURES

- * $R_{DS(ON)} \leq 0.24\Omega @ V_{GS} = 10V$
- * Fast Switching Speed
- * Avalanche Energy Specified

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen-Free		1	2	3	
18N40L-TA3-T	18N40G-TA3-T	TO-220	G	D	S	Tube
18N40L-TF1-T	18N40G-TF1-T	TO-220F1	G	D	S	Tube
18N40L-TF2-T	18N40G-TF2-T	TO-220F2	G	D	S	Tube
18N40L-T47-T	18N40G-T47-T	TO-247	G	D	S	Tube

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

<p>18N40L-TA3-T</p>	<p>(1) T: Tube (2) TA3: TO-220, TF1: TO-220F1, TF2: TO-220F2, T47: TO-247 (3) L: Lead Free, G: Halogen Free</p>
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■ MARKING INFORMATION

PACKAGE	MARKING
TO-220 TO-220F1 TO-220F2 TO-247	

■ 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	A
	Pulsed	I _{DM}	72	A
Avalanche Current		I _{AR}	18	A
Avalanche Energy	Single Pulsed	E _{AS}	1000	mJ
	Repetitive	E _{AR}	30	mJ
Peak Diode Recovery dv/dt		dv/dt	10	V/ns
Power Dissipation	TO-220	P _D	235	W
	TO-220F1		38.5	
	TO-220F2		40.5	
	TO-247		360	
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	TO-220	θ _{JC}	0.53	°C/W
	TO-220F1		3.3	
	TO-220F2		3.0	
	TO-247		0.35	

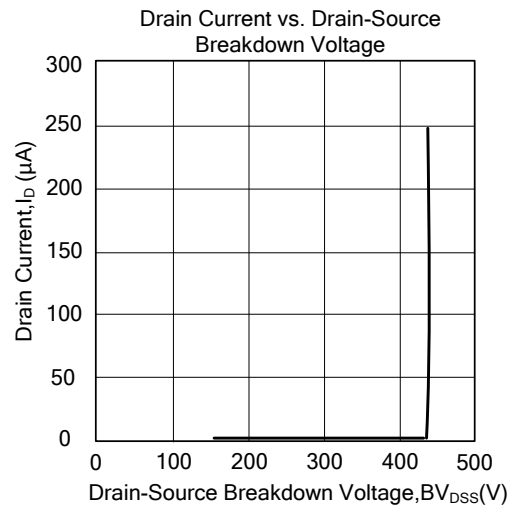
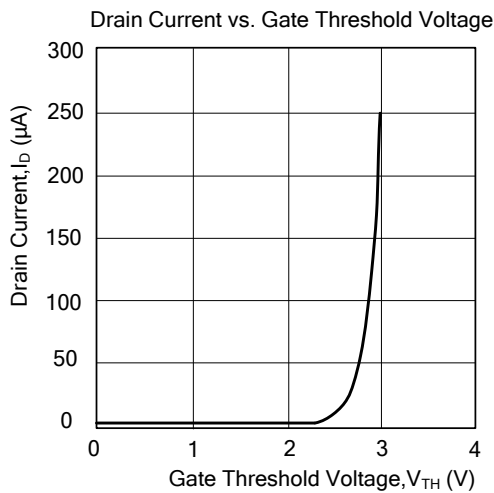
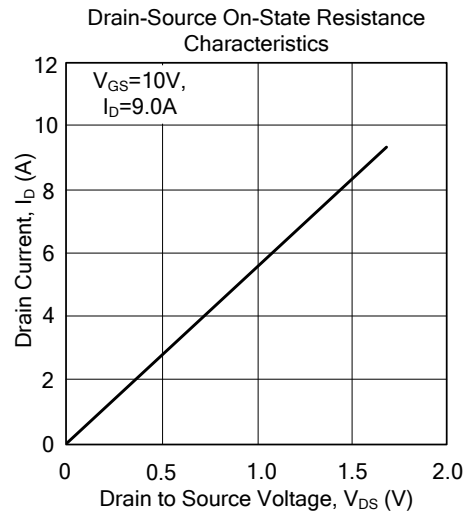
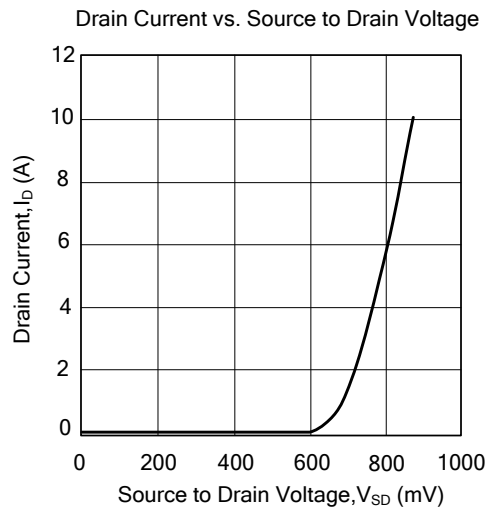
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

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		0.18	0.24	Ω
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 (Note 1, 2)		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 (Note 1, 2)		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			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			72	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 (Note 1)		0.8		μC

Notes: 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

2. Essentially independent of operating temperature

■ TYPICAL CHARACTERISTICS



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