

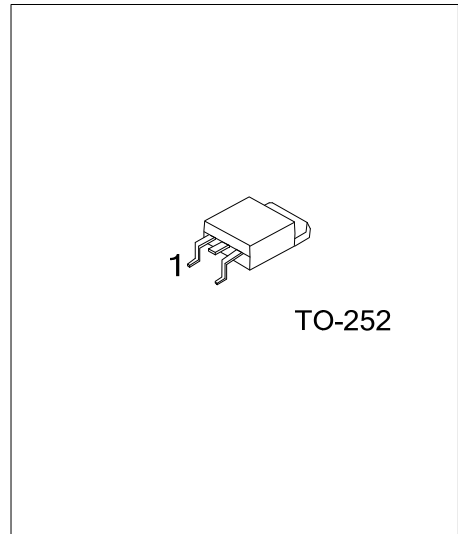


**18T10**

Preliminary

*Power MOSFET*

**9A, 100V N-CHANNEL  
ENHANCEMENT MODE  
POWER MOSFET**



■ DESCRIPTION

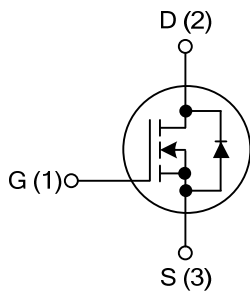
The UTC **18T10** is an N-channel enhancement mode Power MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switching speed and low gate charge, etc.

The UTC **18T10** is suitable for low voltage applications such as DC/DC converters, etc.

■ FEATURES

- \*  $R_{DS(ON)} < 0.16\Omega @ V_{GS}=10V$
- \* High switching speed
- \* Low gate charge

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
18T10L-TN3-T	18T10G-TN3-T	TO-252	G	D	S	Tube
18T10L-TN3-R	18T10G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>18T10L-TN3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TN3: TO-252</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V <sub>DSS</sub>	100	V
Gate-Source Voltage		V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	9	A
	V <sub>GS</sub> @ 10V		5.6	A
	Pulsed (Note 1)	I <sub>DM</sub>	30	A
Total Power Dissipation	T <sub>C</sub> =25°C	P <sub>D</sub>	27.8	W
	T <sub>A</sub> =25°C		1.3	W
Junction Temperature		T <sub>J</sub>	150	°C
Storage Temperature Range		T <sub>STG</sub>	-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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	110	°C/W
Junction to Case	θ <sub>JC</sub>	4.5	°C/W

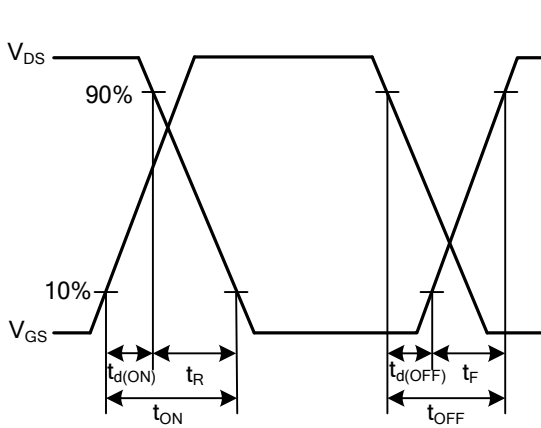
■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	100			V
Drain-Source Leakage Current		I <sub>DSS</sub>	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V			25	μA
			V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			250	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub>	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V			+100	nA
	Reverse		V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V			-100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		3	V
Static Drain-Source On-State Resistance (Note 3)		R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5A			160	mΩ
			V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A			440	mΩ
Forward Transconductance		g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =5A		5		S
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHz		400	640	pF
Output Capacitance		C <sub>OSS</sub>			55		pF
Reverse Transfer Capacitance		C <sub>RSS</sub>			35		pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge (Note 3)		Q <sub>G</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =80V, I <sub>D</sub> =5A		23	50	nC
Gate to Source Charge		Q <sub>GS</sub>			5.25		nC
Gate to Drain ("Miller") Charge		Q <sub>GD</sub>			5.5		nC
Turn-ON Delay Time (Note 3)		t <sub>D(ON)</sub>	V <sub>DS</sub> =30V, I <sub>D</sub> =0.5A, R <sub>G</sub> =25Ω, V <sub>GS</sub> =10V		33		ns
Rise Time		t <sub>R</sub>			28		ns
Turn-OFF Delay Time		t <sub>D(OFF)</sub>			160		ns
Fall-Time		t <sub>F</sub>			45		ns
<b>SOURCE- DRAIN DIODE</b>							
Forward On Voltage (Note 3)		V <sub>SD</sub>	I <sub>S</sub> =5A, V <sub>GS</sub> =0V			1.3	V

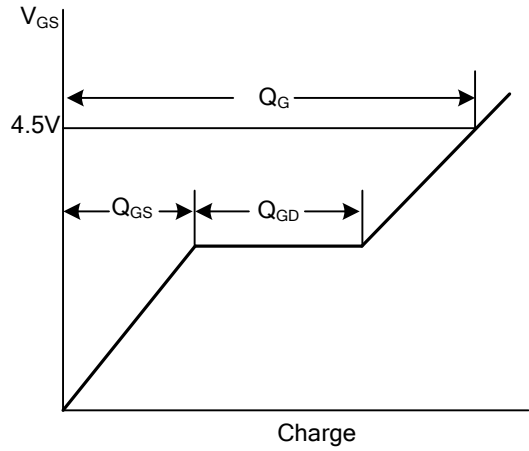
Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse test.

■ TEST CIRCUITS AND WAVEFORMS



Resistive Switching Waveforms



Gate Charge Waveforms

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