

**18T10**

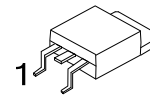
Preliminary

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.

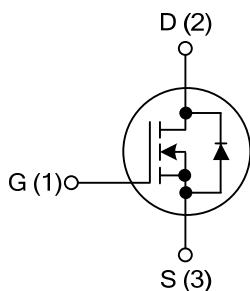
The UTC **18T10** is suitable for low voltage applications such as DC/DC converters, etc.



TO-252

■ 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

18T10L-TN3-T	(1) Packing Type	(1) T: Tube, R: Tape Reel
	(2) Package Type	(2) TN3: TO-252
	(3) Lead Free	(3) L: Lead Free, G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	100	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	T _C =25°C	I _D	9	A
	V _{GS} @ 10V	T _C =100°C		5.6	A
	Pulsed (Note 1)		I _{DM}	30	A
Total Power Dissipation	T _C =25°C		P _D	27.8	W
	T _A =25°C			1.3	W
Junction Temperature			T _J	150	°C
Storage Temperature Range			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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	$^{\circ}\text{C/W}$
Junction to Case	θ_{JC}	4.5	$^{\circ}\text{C/W}$

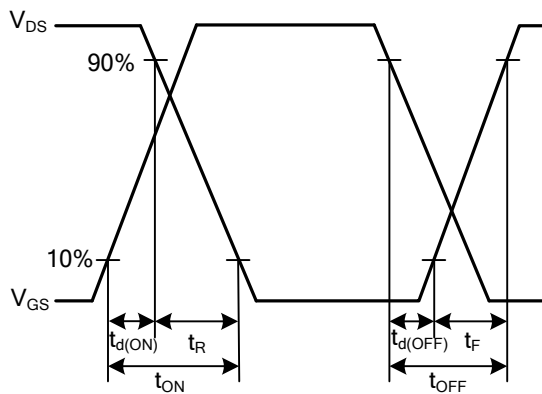
■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

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

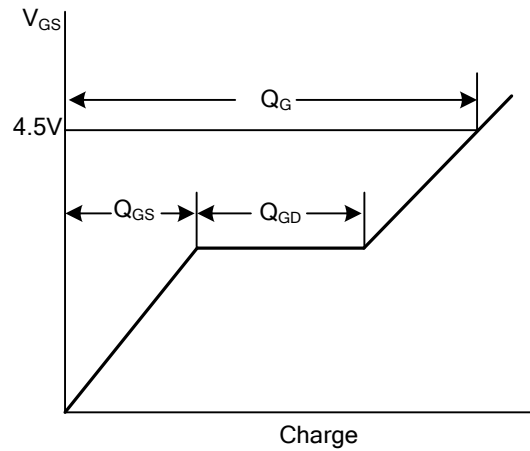
Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse test.

■ TEST CIRCUITS AND WAVEFORMS



Resistive Switching Waveforms



Gate Charge Waveforms

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