



**UTT25P10**

Preliminary

Power MOSFET

**25A, 100V P-CHANNEL  
POWER MOSFET**

■ DESCRIPTION

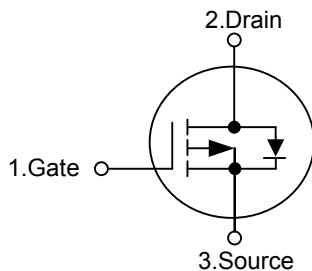
The UTC **UTT25P10** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, and it can also withstand high energy in the avalanche.

This UTC **UTT25P10** is suitable for motor drivers, switching regulators, converters and relay drivers, etc.

■ FEATURES

- \*  $R_{DS(ON)}=0.150\Omega @ V_{GS}=-10V$
- \* High Switching Speed

■ SYMBOL

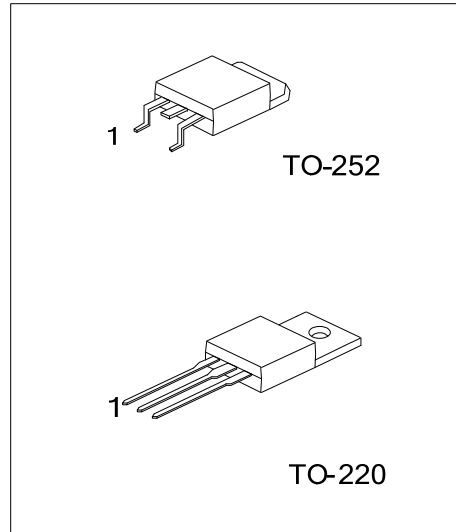


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT25P10L-TA3-T	UTT25P10G-TA3-T	TO-220	G	D	S	Tube
UTT25P10L-TN3-T	UTT25P10G-TN3-T	TO-252	G	D	S	Tube
UTT25P10L-TN3-R	UTT25P10G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT25P10L-TA3-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) TA3: TO-220, TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS ( $T_c=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (Note 2)		$V_{DSS}$	-100	V
Drain-Gate Voltage ( $R_{GS}=20\text{k}\Omega$ ) (Note 2)		$V_{DGR}$	-100	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	-25	A
	Pulsed (Note 3)	$I_{DM}$	-60	A
Linear Derating Factor			1.2	W/ $^\circ\text{C}$
Power Dissipation	TO-220	$P_D$	150	W
	TO-252		50	
Junction Temperature		$T_J$	-55~+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55~+150	$^\circ\text{C}$

Notes: 1. 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.

2.  $T_J=25^\circ\text{C} \sim 150^\circ\text{C}$

3. Repetitive rating: pulse width limited by maximum junction temperature.

■ THERMAL CHARACTERISTICS

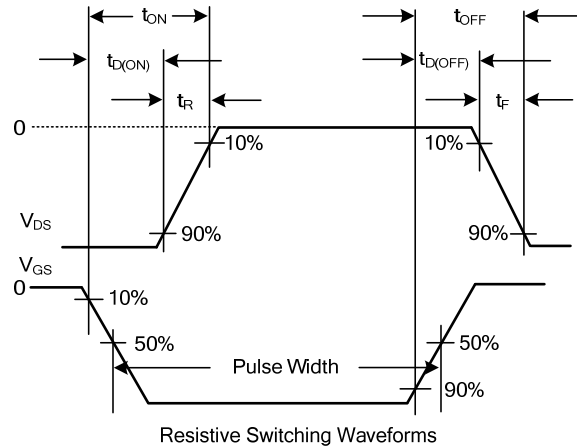
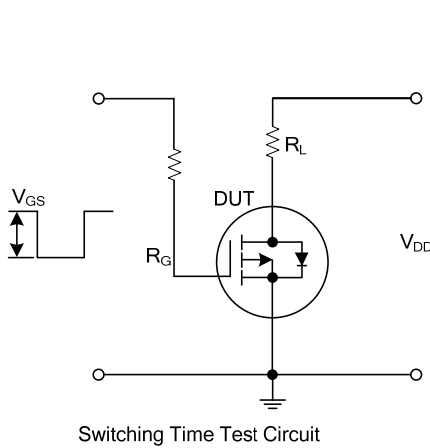
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220	$\theta_{JC}$	0.83	$^\circ\text{C/W}$
	TO-252		2.5	

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	-100			V
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=\text{Rated } BV_{DSS}, V_{GS}=0\text{V}$			-1	$\mu\text{A}$
			$V_{DS}=0.8 \times \text{Rated } BV_{DSS}, V_{GS}=0\text{V}, T_c=125^\circ\text{C}$			-25	
Gate- Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			-100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	-2		-4	V
Drain to Source On Voltage (Note 1)		$V_{DS(ON)}$	$I_D=-25\text{A}, V_{GS}=-10\text{V}$			-3.75	V
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	$V_{GS}=-10\text{V}, I_D=2.5\text{A}$			0.150	$\Omega$
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		$C_{ISS}$	$V_{GS}=0\text{V}, V_{DS}=-25\text{V}, f=1\text{MHz}$			3000	pF
Output Capacitance		$C_{OSS}$				1500	pF
Reverse Transfer Capacitance		$C_{RSS}$				600	pF
<b>SWITCHING PARAMETERS</b>							
Turn-ON Delay Time		$t_{D(ON)}$	$I_D \approx 12.5\text{A}, V_{DS}=-50\text{V}, R_{GS}=50\Omega, V_{GS}=-10\text{V}, R_L=4.0\Omega$		35	50	ns
Rise Time		$t_R$			165	250	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			270	400	ns
Fall-Time		$t_F$			165	250	ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Drain-Source Diode Forward Voltage (Note 1)		$V_{SD}$	$I_{SD}=-12.5\text{A}$ ,			-1.4	V

Note: 1. Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

■ TEST CIRCUITS AND WAVEFORMS



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