



## UTT50P10

Preliminary

Power MOSFET

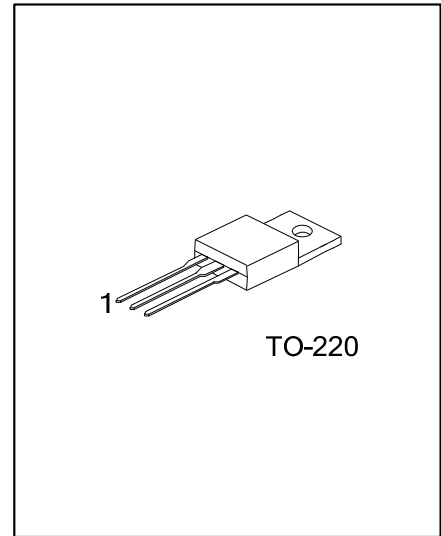
### -50A, -100V P-CHANNEL POWER MOSFET

#### DESCRIPTION

The UTC **UTT50P10** 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. It can also withstand high energy in the avalanche.

#### FEATURES

- \*  $V_{DS} = -100V$
- \*  $I_D = -50A$
- \*  $R_{DS(ON)} < 60m\Omega @ V_{GS} = -10V, I_D = -20A$
- \* High Switching Speed



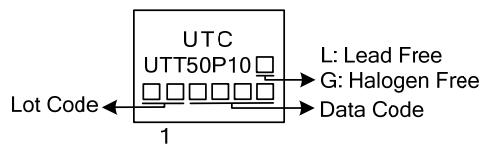
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT50P10L-TA3-T	UTT50P10G-TA3-T	TO-220	G	D	S	Tube

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

<p>UTT50P10L-TA3-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube</li> <li>(2) TA3: TO-220</li> <li>(3) L: Lead Free, G: Halogen Free and Lead Free</li> </ul>
--	---

#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_c=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	-50
	Pulsed	$I_{DM}$	-90
Power Dissipation	$P_D$	225	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^\circ\text{C}$

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 Case	$\theta_{JC}$	0.55	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

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	$I_{DSS}$	$V_{DS}=0.8 \times \text{Max. rating}$ , $V_{GS}=0\text{V}$ , $T_J=25^\circ\text{C}$			-1	$\mu\text{A}$
		$V_{DS}=0.8 \times \text{Max. rating}$ , $V_{GS}=0\text{V}$ , $T_J=125^\circ\text{C}$			-500	
Gate- Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20\text{V}$			+100
	Reverse			$V_{GS}=-20\text{V}$		
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=-250\mu\text{A}$	-1		-3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$ , $I_D=-20\text{A}$			60	$\text{m}\Omega$
		$V_{GS}=-4.5\text{V}$ , $I_D=-15\text{A}$			65	$\text{m}\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS}=0\text{V}$ , $V_{DS}=-50\text{V}$ , $f=1.0\text{MHz}$		4200		pF
Output Capacitance	$C_{OSS}$			250		pF
Reverse Transfer Capacitance	$C_{RSS}$			110		pF
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=-50\text{V}$ , $V_{GS}=-10\text{V}$ , $I_D=-50\text{A}$ , $R_G=1\Omega$		80	130	ns
Rise Time	$t_R$			76	130	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			740	900	ns
Fall-Time	$t_F$			200	400	ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_F=-20\text{A}$ , $V_{GS}=0\text{V}$ , Pulse test, $t \leq 300\mu\text{s}$ , duty cycle $d \leq 2\%$		-1.0	-1.5	V
Body Diode Reverse Recovery Time	$t_{RR}$	$T_J=25^\circ\text{C}$ , $I_F=-20\text{A}$ , $V_R=-50\text{V}$ , $di/dt=-100\text{A}/\mu\text{s}$		80	120	ns

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.