



UTT50P10

Preliminary

Power MOSFET

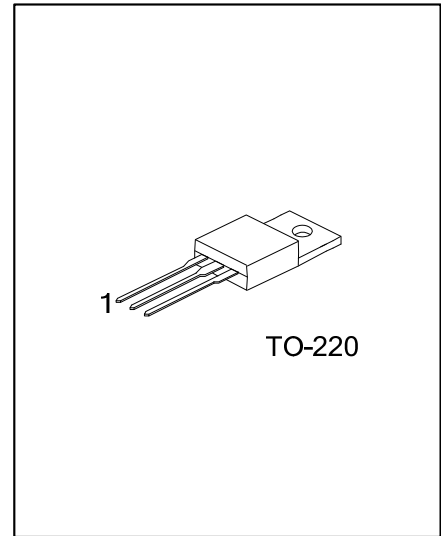
-50A, -100V P-CHANNEL POWER MOSFET

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

- * $V_{DS} = -100V$
- * $I_D = -50A$
- * $R_{DS(ON)} = 0.023\Omega @ V_{GS} = -10V, I_D = -20A$
- * 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> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</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
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	-50	A
	Pulsed	I_{DM}	-90	A
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	θ_{JC}	0.55	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
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	μA
		$V_{DS}=0.8 \times \text{Max. rating}$, $V_{GS}=0\text{V}$, $T_J=125^\circ\text{C}$			-500	
Gate- Source Leakage Current	Forward	I_{GSS}			+100	nA
	Reverse					
ON CHARACTERISTICS						
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	$R_{DS(ON)}$	$V_{GS}=-10\text{V}$, $I_D=-20\text{A}$		0.019	0.023	Ω
		$V_{GS}=-4.5\text{V}$, $I_D=-15\text{A}$		0.021	0.025	
Forward Transconductance	g_{FS}	$V_{DS}=-15\text{V}$, $I_D=-20\text{A}$		80		S(1/ Ω)
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=-50\text{V}$, $f=1.0\text{MHz}$		11100		pF
Output Capacitance	C_{OSS}			700		pF
Reverse Transfer Capacitance	C_{RSS}			1700		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=-50\text{V}$, $V_{GS}=-10\text{V}$, $I_D=-50\text{A}$, $R_G=1\Omega$		20	30	ns
Rise Time	t_R			510	855	
Turn-OFF Delay Time	$t_{D(OFF)}$			145	220	
Fall-Time	t_F			870	1300	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_F=-20\text{A}$, $V_{GS}=0\text{V}$, Pulse test, $t_s \leq 300\mu\text{s}$, 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

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