



UTT50P10

Preliminary

Power MOSFET

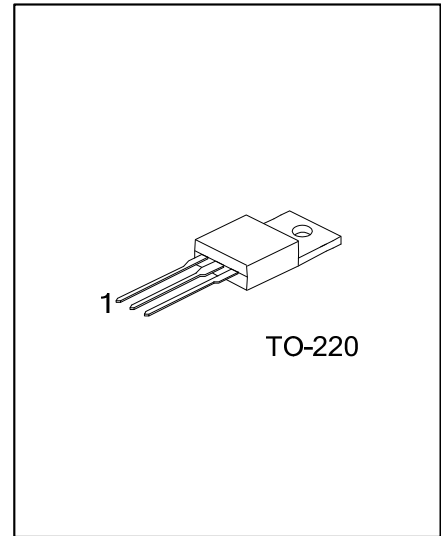
-50A, -100V P-CHANNEL POWER MOSFET

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

UTT50P10L-TA3-T		(1) Packing Type	(1) T: Tube
		(2) Package Type	(2) TA3: TO-220
		(3) Lead Free	(3) G: Halogen Free, L: Lead Free

■ 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 =-250μA, V _{GS} =0V	-100			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =0.8×Max.rating, V _{GS} =0V, T _J =25°C			-1	μA
			V _{DS} =0.8×Max.rating, V _{GS} =0V, T _J =125°C			-500	
Gate- Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V			+100	nA
	Reverse		V _{GS} =-20V			-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		R _{DS(ON)}	V _{GS} =-10V, I _D =-20A		0.019	0.023	Ω
			V _{GS} =-4.5V, I _D =-15A		0.021	0.025	
Forward Transconductance		g _{FS}	V _{DS} =-15V, I _D =-20A		80		S(1/Ω)
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =-50V, f=1.0MHz		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} =-50V, V _{GS} =-10V, I _D =-50A, R _G =1Ω		20	30	ns
Rise Time		t _R			510	855	ns
Turn-OFF Delay Time		t _{D(OFF)}			145	220	ns
Fall-Time		t _F			870	1300	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V _{SD}	I _F =-20A, V _{GS} =0V, Pulse test, t≤300μs, duty cycle d≤2%		-1.0	-1.5	V
Body Diode Reverse Recovery Time		t _{RR}	T _J =25°C, I _F =-20A, V _R =-50V, di/dt=-100A/μs		80	120	ns

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