



UTT20P04

Preliminary

Power MOSFET

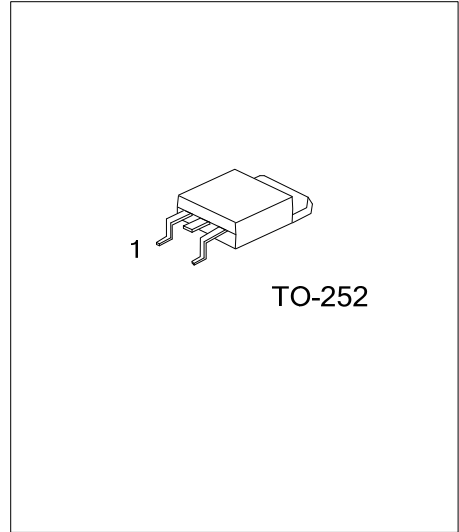
-40V, -20A P-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **UTT20P04** 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.

FEATURES

- * $R_{DS(ON)} < 42m\Omega$ @ $V_{GS} = -10V, I_D = -20A$
- * High Switching Speed



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT20P04L-TN3-R	UTT20P04G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT20P04L-TN3-R 	(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free, L: Lead Free
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-40	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	-20	A
	Pulsed	I_{DM}	-80	A
Avalanche Current		I_{AR}	-20	A
Avalanche Energy	Single Pulsed	E_{AS}	36	mJ
Power Dissipation		P_D	50	W
Junction Temperature		T_J	+150	$^{\circ}C$
Storage Temperature Range		T_{STG}	-55~+150	$^{\circ}C$

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

2. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

3. $T_J=25^{\circ}C$, $V_{DD}=-25V$, $L=0.1mH$, $R_G=25\Omega$, $I_{AS}=-20A$.

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=-250\mu A$, $V_{GS}=0V$	-40			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=-40V$			1	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		$V_{GS(TH)}$	$I_D=-250\mu A$	-1		-3	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=-10V$, $I_D=-20A$			42	m Ω
			$V_{GS}=-5V$, $I_D=-8A$			55	m Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0V$, $V_{DS}=-25V$, $f=1MHz$		1190		pF
Output Capacitance		C_{OSS}			185		pF
Reverse Transfer Capacitance		C_{RSS}			95		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{GS}=-10V$, $V_{DD}=-30V$, $I_D=-20A$		17		nC
Gate to Source Charge		Q_{GS}			5.5		nC
Gate to Drain Charge		Q_{GD}			3		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=-30V$, $I_D=-20A$ $R_G=25\Omega$, $V_{GS}=-10V$		6		ns
Rise Time		t_R			16		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			26		ns
Fall-Time		t_F			10		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				-20	A
Maximum Body-Diode Pulsed Current		I_{SM}				-80	A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=-20A$			-1.2	V

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