



## UFP254

Power MOSFET

### 23A, 250V N-CHANNEL POWER MOSFET

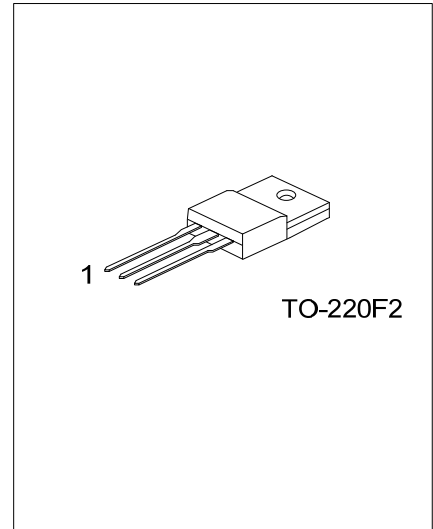
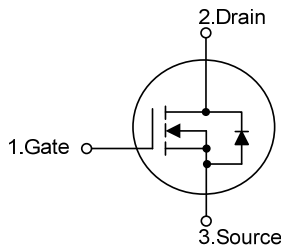
#### DESCRIPTION

The UTC **UFP254** is an N-channel mode Power FET, it uses UTC's advanced technology. This technology allows a minimum on-state resistance, superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

#### FEATURES

- \*  $R_{DS(ON)} \leq 140m\Omega @ V_{GS}=10V, I_D=14A$
- \* Low Gate Charge (Maximum 140nC)
- \* High Switching Speed

#### SYMBOL



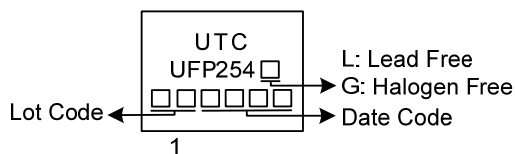
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFP254L-TF2-T	UFP254G-TF2-T	TO-220F2	G	D	S	Tube

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

<p>UFP254G-TF2-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) TF2: TO-220F2</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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#### MARKING



### ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	250	V
Gate-Source Voltage		$V_{GSS}$	±20	V
Drain Current	Continuous	$I_D$	23	A
	Pulsed	$I_{DM}$	92	A
Avalanche Current		$I_{AR}$	23	A
Avalanche Energy	Single Pulsed	$E_{AS}$	1780	mJ
Peak Diode Recovery dv/dt		dv/dt	9	V/ns
Power Dissipation		$P_D$	42	W
Junction Temperature		$T_J$	+150	°C
Storage Temperature Range		$T_{STG}$	-55 ~ +150	°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.

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	250			V
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=250V$			25	$\mu A$
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20V, V_{DS}=0V$			+100	nA
	Reverse		$V_{GS}=-20V, V_{DS}=0V$			-100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10V, I_D=14A$			140	m $\Omega$
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance	$C_{ISS}$	$V_{GS}=0V, V_{DS}=25V, f=1MHz$			2800		pF
Output Capacitance	$C_{OSS}$				380		pF
Reverse Transfer Capacitance	$C_{RSS}$				23		pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge	$Q_G$	$V_{DS}=50V, V_{GS}=10V, I_D=1.3A, I_G=100\mu A$			120		nC
Gate to Source Charge	$Q_{GS}$				19		nC
Gate to Drain Charge	$Q_{GD}$				21		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30V, V_{GS}=10V, I_D=0.5A, R_G=25\Omega$			85		ns
Rise Time	$t_R$				115		ns
Turn-OFF Delay Time	$t_{D(OFF)}$				780		ns
Fall-Time	$t_F$				170		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Maximum Body-Diode Continuous Current		$I_S$				23	A
Maximum Body-Diode Pulsed Current		$I_{SM}$				92	A
Drain-Source Diode Forward Voltage		$V_{SD}$	$I_S=23A, V_{GS}=0V$			1.8	V
Reverse Recovery Time		$t_{rr}$	$V_{GS} = 0 V, I_S = 10A,$			212	ns
Reverse Recovery Charge		$Q_{RR}$	$dI_F / dt = 100 A/\mu s$ (Note 1)			1.73	$\mu C$

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