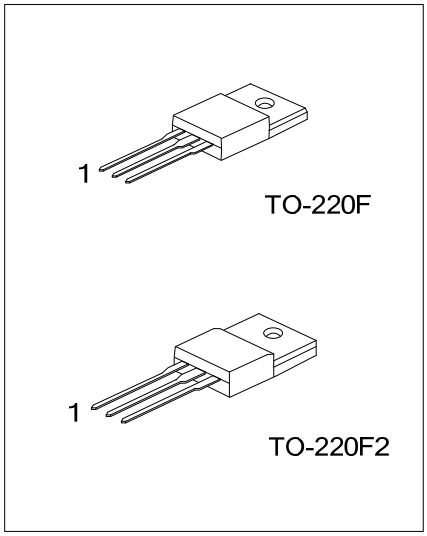
UFP254

Power MOSFET

23A, 250V N-CHANNEL POWER MOSFET



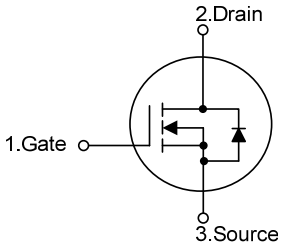
■ DESCRIPTION

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

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

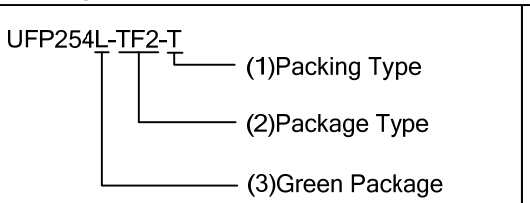
■ SYMBOL



■ 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
UFP254L-TF3-T	UFP254G-TF3-T	TO-220F	G	D	S	Tube

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

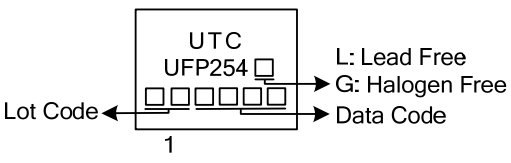


(1) T: Tube

(2) TF2: TO-220F2

(3) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING



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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
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	250			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=250V			25	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=250μA	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=14A			140	mΩ
DYNAMIC PARAMETERS							
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
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{DS}=50V, V_{GS}=10V, I_D=1.3A , I_G=100μA		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=25Ω		85		ns
Rise Time		t_R			115		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			780		ns
Fall-Time		t_F			170		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
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, dI_F / dt = 100 A/μs (Note 1)		212		ns
Reverse Recovery Charge		Q_{RR}			1.73		μC

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