



UF9Z24

Power MOSFET

12A, 55V P-CHANNEL POWER MOSFET

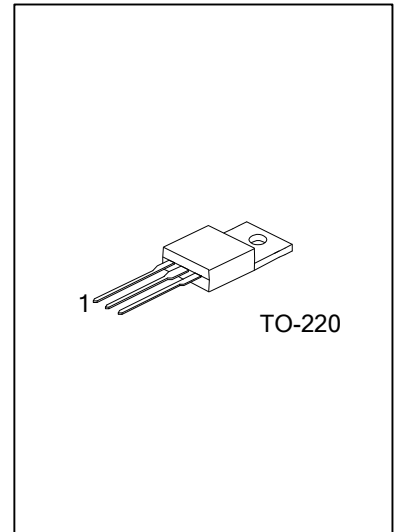
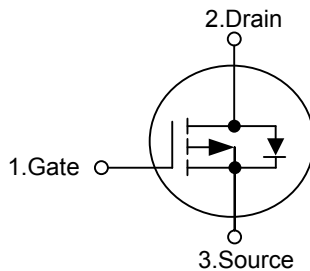
DESCRIPTION

The UTC **UF9Z24** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed, cost-effectiveness and minimum on-state resistance. It can also withstand high energy in the avalanche.

FEATURES

- * $R_{DS(ON)}=175m\Omega$ $V_{GS}=-55V$, $I_D=-12A$
- * High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF9Z24L-TA3-T	UF9Z24G-TA3-T	TO-220	G	D	S	Tube

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

UF9Z24L-TA3-T	(1) Packing Type (2) Package Type (3) Lead Free	(1) R: Tape Reel, T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free
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■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	-55	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	T _C =25°C	I _D	-12	A
	Pulsed		I _{DM}	-48	A
Single Pulsed Avalanche Current (L=0.1mH)			I _{AS}	-7.2	A
Single Pulsed Avalanche Energy (L=0.1mH)(Note 1)			E _{AS}	96	mJ
Power Dissipation			P _D	38	W
Junction Temperature			T _J	+150	°C
Storage Temperature			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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	62	°C/W
Junction to Case	θ _{JC}	3.3	°C/W

Notes: 1. Duty cycle ≤ 1 %.

■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

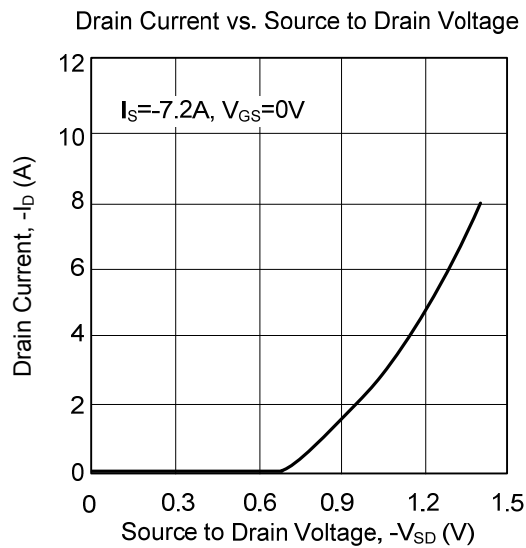
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =-250μA, V _{GS} =0V	-55			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =-55V, V _{GS} =0V			-25	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V			+100	nA
	Reverse		V _{GS} =-20V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-2.0		-4.0	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =-10V, I _D =-12A (Note 1)			0.175	Ω
On State Drain Current (Note 1)		I _{D(ON)}	V _{GS} =-10V, V _{DS} =-5V	-12			A
DYNAMIC PARAMETERS (Note 2)							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =-25V, f=1.0MHz (Note 2)		350		pF
Output Capacitance		C _{OSS}			170		pF
Reverse Transfer Capacitance		C _{RSS}			92		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{GS} =-10V, V _{DS} =-44V, I _D =-7.2A (Note 3)			19	nC
Gate to Source Charge		Q _{GS}				5.1	nC
Gate to Drain Charge		Q _{GD}				10	nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =-28V, I _D =-7.2A, R _G =24Ω , R _D =3.7Ω (Note 3)		13		ns
Rise Time		t _R			55		ns
Turn-OFF Delay Time		t _{D(OFF)}			23		ns
Fall-Time		t _F			37		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS (Note 2)							
Maximum Body-Diode Continuous Current		I _S				-12	A
Maximum Body-Diode Pulsed Current		I _{SM}				-48	A
Drain-Source Diode Forward Voltage		V _{SD}	I _F =-12A, V _{GS} =0V (Note 1)			-1.6	V

Notes: 1. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2 %.

2. Guaranteed by design, not subject to production testing.

3. Independent of operating temperature.

■ TYPICAL CHARACTERISTICS



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