



# UF5N15Z

Power MOSFET

## 5A, 150V N-CHANNEL POWER MOSFET

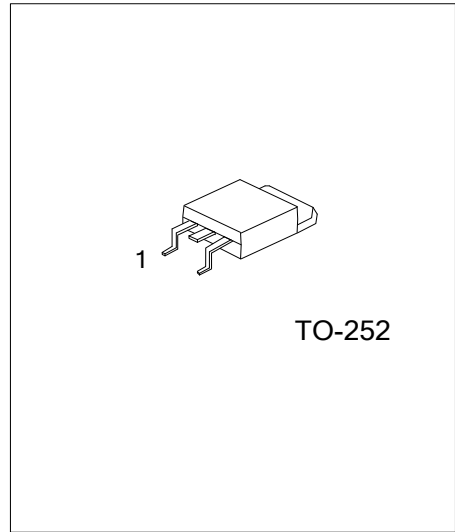
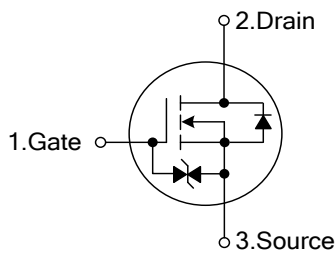
### DESCRIPTION

The UTC **UF5N15Z** is an N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and superior switching performance.

### FEATURES

- \*  $R_{DS(ON)} < 1.9\Omega$  @  $V_{GS} = 10V, I_D = 5A$
- \* High switching speed
- \* Low gate charge

### SYMBOL



### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF5N15ZL-TN3-T	UF5N15ZG-TN3-T	TO-252	G	D	S	Tube
UF5N15ZL-TN3-R	UF5N15ZG-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UF5N15ZL-TN3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	150	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	5	A
	Pulsed	$I_{DM}$	20	A
Avalanche Current		$I_{AR}$	5	A
Avalanche Energy	Single Pulsed	$E_{AS}$	19	mJ
Power Dissipation		$P_D$	54	W
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature Range		$T_{STG}$	-55~+150	$^{\circ}\text{C}$

Notes: 1. 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.

2.  $L=1.5\text{mH}$ ,  $I_{AS}=5\text{A}$ ,  $V_{DD}=25\text{V}$ ,  $R_G=25\Omega$ , Starting  $T_J=25^{\circ}\text{C}$ .

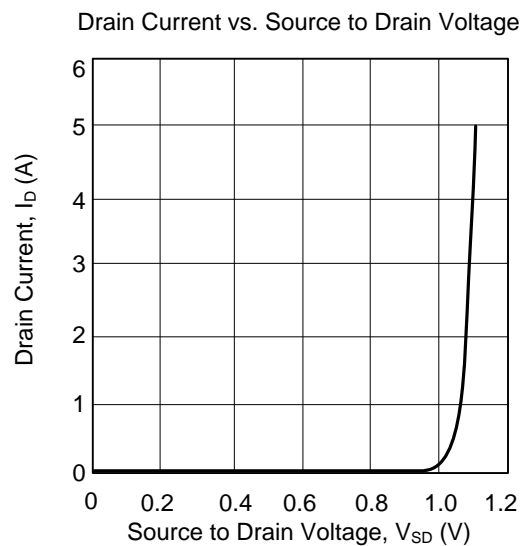
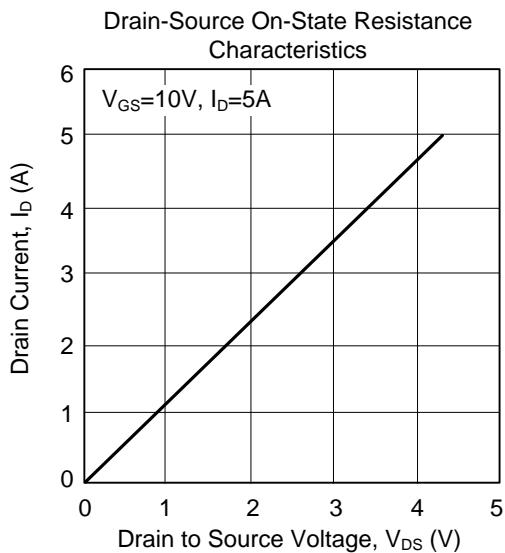
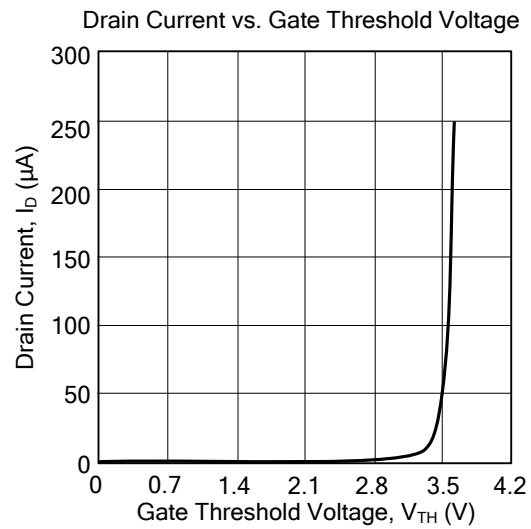
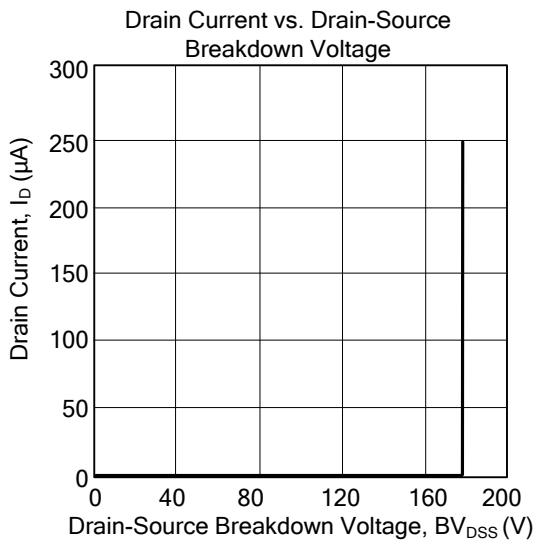
### ■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	110	$^{\circ}\text{C/W}$
Junction to Case	$\theta_{JC}$	2.13	$^{\circ}\text{C/W}$

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu\text{A}$ , $V_{GS}=0\text{V}$	150			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=150\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current	Forward Reverse	$I_{GSS}$ $V_{GS}=+20\text{V}$ , $V_{DS}=0\text{V}$ $V_{GS}=-20\text{V}$ , $V_{DS}=0\text{V}$			10	$\mu\text{A}$
					-10	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$ , $I_D=5\text{A}$	0.1		1.9	$\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS}=25\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$		718	955	pF
Output Capacitance	$C_{OSS}$			77	105	pF
Reverse Transfer Capacitance	$C_{RSS}$			3.3	5	pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	$Q_G$	$V_{GS}=10\text{V}$ , $V_{DS}=75\text{V}$ , $I_D=4.5\text{A}$		10.6	15	nC
Gate to Source Charge	$Q_{GS}$			3.5		nC
Gate to Drain Charge	$Q_{GD}$			2.3		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$ , $I_D=1\text{A}$ , $R_G=25\Omega$ , $V_{GS}=10\text{V}$		9.2	19	ns
Rise Time	$t_R$			1.6	10	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			14	24	ns
Fall-Time	$t_F$			2.9	10	ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	$I_S$				5	A
Maximum Body-Diode Pulsed Current	$I_{SM}$				20	A
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=5\text{A}$ , $V_{GS}=0\text{V}$			1.43	V

### ■ TYPICAL CHARACTERISTICS



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