



# UF5N15Z

**Power MOSFET**

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

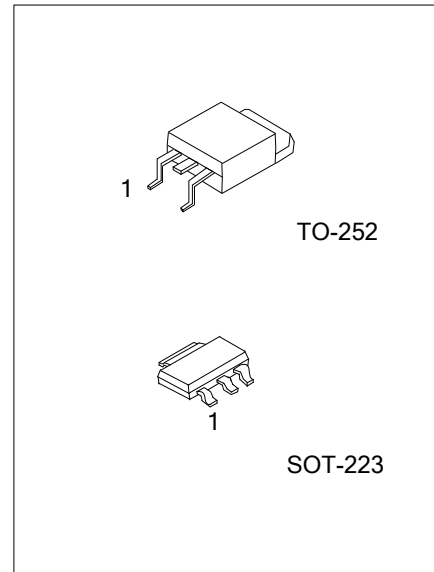
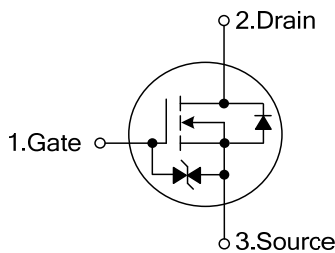
■ DESCRIPTION

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	
-	UF5N15ZG-AA3-R	SOT-223	G	D	S	Tape Reel
UF5N15ZL-TN3-R	UF5N15ZG-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UF5N15ZG-AA3-R</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) R: Tape Reel</li> <li>(2) AA3: SOT-223, TN3: TO-252</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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■ MARKING

SOT-223	TO-252

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	150	V
Gate-Source Voltage		$V_{GSS}$	±20	V
Drain Current	Continuous	$I_D$	5	A
	Pulsed	$I_{DM}$	20	A
Avalanche Energy		$E_{AS}$	19	mJ
Power Dissipation	SOT-223	$P_D$	10	W
	TO-252		54	W
Junction Temperature		$T_J$	+150	°C
Storage Temperature Range		$T_{STG}$	-55 ~ +150	°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.  $L=1.5mH$ ,  $I_{AS}=5A$ ,  $V_{DD}=25V$ ,  $R_G=25\Omega$ , Starting  $T_J=25^\circ C$ .

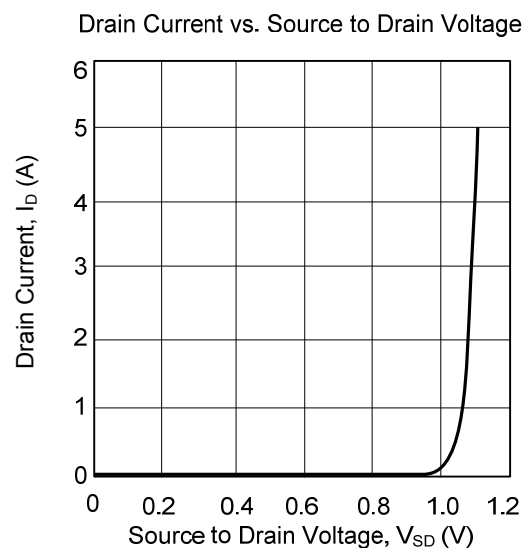
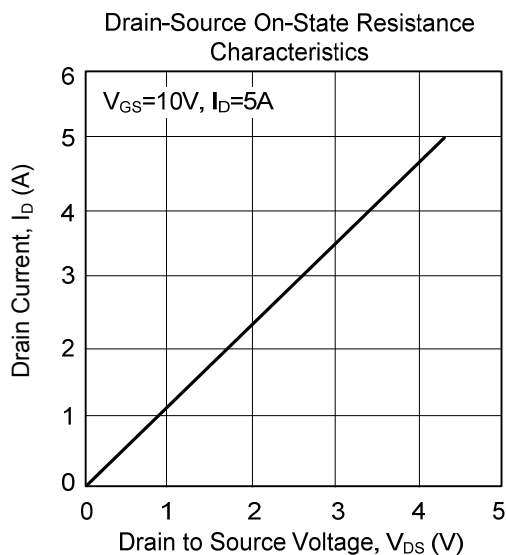
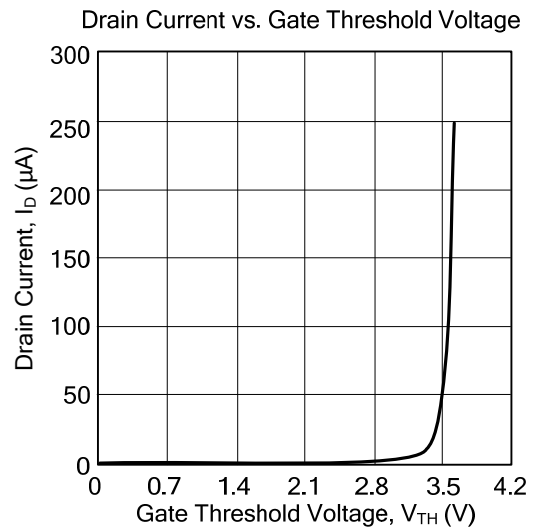
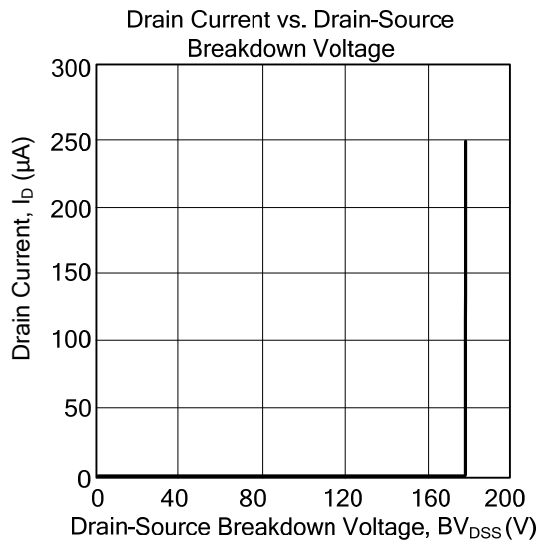
### ■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	$\theta_{JA}$	150	°C/W
	TO-252		110	°C/W
Junction to Case	SOT-223	$\theta_{JC}$	12.5	°C/W
	TO-252		2.13	°C/W

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
<b>OFF CHARACTERISTICS</b>								
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu A$ , $V_{GS}=0V$	150			V	
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=150V$ , $V_{GS}=0V$			1	$\mu A$	
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20V$ , $V_{DS}=0V$			10	$\mu A$	
	Reverse		$V_{GS}=-20V$ , $V_{DS}=0V$			-10	$\mu A$	
<b>ON CHARACTERISTICS</b>								
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	2		4	V	
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10V$ , $I_D=5A$	0.1		1.9	$\Omega$	
<b>DYNAMIC PARAMETERS</b>								
Input Capacitance		$C_{ISS}$	$V_{DS}=25V$ , $V_{GS}=0V$ , $f=1MHz$		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		$Q_G$	$V_{GS}=10V$ , $V_{DS}=75V$ , $I_D=4.5A$		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		$t_{D(ON)}$	$V_{DD}=30V$ , $I_D=1A$ , $R_G=25\Omega$ , $V_{GS}=10V$		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		$V_{SD}$	$I_S=5A$ , $V_{GS}=0V$			1.43	V	

### ■ TYPICAL CHARACTERISTICS



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