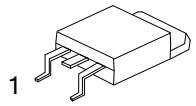
UF5N15Z

Power MOSFET

5A, 150V N-CHANNEL POWER MOSFET



TO-252

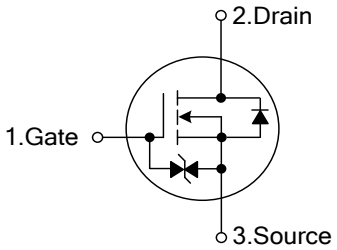
■ DESCRIPTION

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

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

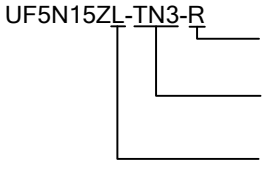
■ SYMBOL



■ 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



(1) R: Tape Reel, T: Tube

(2) TN3: TO-252

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

■ 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 Current		I_{AR}	5	A
Avalanche Energy	Single Pulsed	E_{AS}	19	mJ
Power Dissipation		P_D	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=25Ω, Starting T_J=25°C.

■ THERMAL CHARACTERISTICS

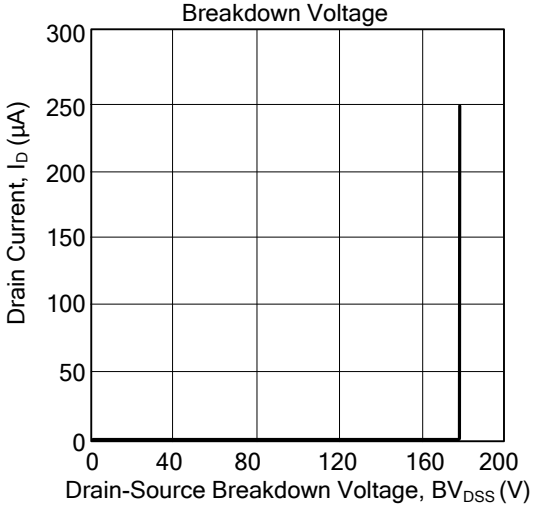
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	°C/W
Junction to Case	θ_{JC}	2.13	°C/W

■ ELECTRICAL CHARACTERISTICS

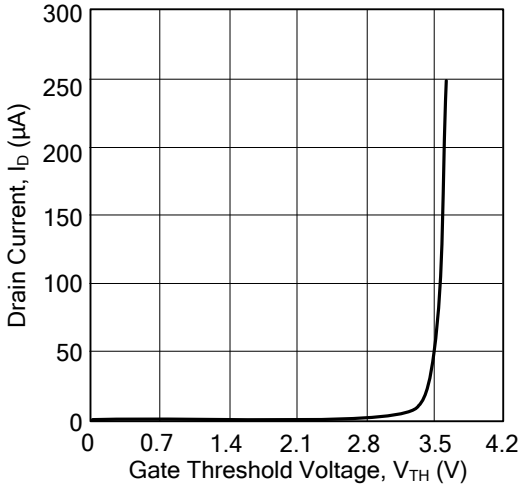
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	150			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=150V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			10	μA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-10	μA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=5A	0.1		1.9	Ω
DYNAMIC PARAMETERS							
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
SWITCHING PARAMETERS							
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=25Ω, 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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
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

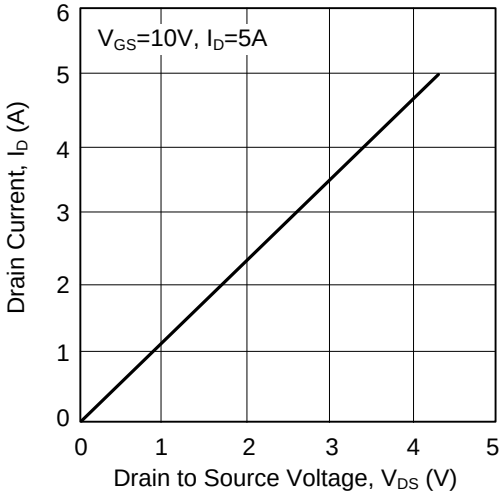
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage