



## UT3043Z

Preliminary

Power MOSFET

### 255mA, 20V N-CHANNEL POWER MOSFET

#### DESCRIPTION

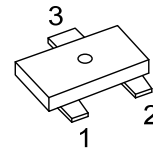
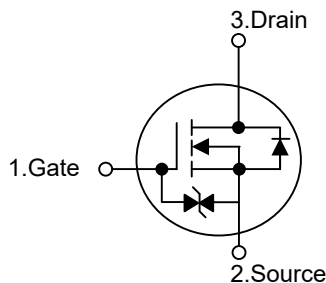
The UTC **UT3043Z** is N-Channel enhancement mode Power MOSFET, designed with high density cell, with fast switching speed, low on-resistance, excellent thermal and electrical capabilities and operation with low gate voltages.

This device is suitable for use as a load switch or in PWM applications.

#### FEATURES

- \*  $R_{DS(ON)} \leq 2.5 \Omega$  @  $V_{GS} = 4.5V$ ,  $I_D = 255mA$
- \* Low Voltage Drive
- \* Low Threshold Levels
- \* ESD Protected 2KV HBM
- \* Low Profile ( $< 0.5$  mm) Allows It to Fit Easily into Extremely
- \* Operated at Standard Logic Level Gate Drive, Facilitating Future Migration to Lower Levels Using the Same Basic Topology

#### SYMBOL



SOT-723

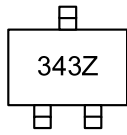
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3043ZL-AQ3-R	UT3043ZG-AQ3-R	SOT-723	G	S	D	Tape Reel

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

UT3043ZG-AQ3-R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) AQ3: SOT-723
		(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_C=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DS}$	20	V
Gate-Source Voltage		$V_{GS}$	$\pm 10$	V
Drain Current	Continuous	$I_D$	255	mA
	Pulsed (Note 2)	$I_{DM}$	400	mA
Power Dissipation		$P_D$	0.1 (Note 3)	W
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-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. Repetitive Rating: Pulse width limited by maximum junction temperature.

3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	1250 (Note)	$^{\circ}\text{C/W}$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			10	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.4		1.3	V
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =10mA			2.3	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =255mA			2.5	Ω
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =1mA			4.5	Ω
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =1mA			5.5	Ω
		V <sub>GS</sub> =1.65V, I <sub>D</sub> =1mA			6.0	Ω
DYNAMIC CHARACTERISTICS						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz		22		pF
Output Capacitance	C <sub>OSS</sub>			14.5		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			7.8		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge (Note 1)	Q <sub>G</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =255mA (Note 1, 2)		3.4		nC
Gate-Source Charge	Q <sub>GS</sub>			0.6		nC
Gate-Drain Charge	Q <sub>GD</sub>			0.5		nC
Turn-On Delay Time (Note 1)	t <sub>D(ON)</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =255mA, R <sub>G</sub> =6Ω (Note 1, 2)		6		ns
Turn-On Rise Time	t <sub>R</sub>			10		ns
Turn-Off Delay Time	t <sub>D(OFF)</sub>			13		ns
Turn-Off Fall Time	t <sub>F</sub>			17		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>				255	mA
Maximum Pulsed Drain-Source Diode Forward Current	I <sub>SM</sub>				400	mA
Drain-Source Diode Forward Voltage (Note 1)	V <sub>SD</sub>	I <sub>S</sub> =255mA, V <sub>GS</sub> =0V			1.4	V

Notes: 1. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$ .

2. Essentially independent of operating temperature.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.