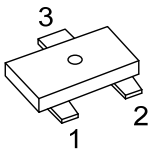
255mA, 20V N-CHANNEL POWER MOSFET



SOT-723

■ DESCRIPTION

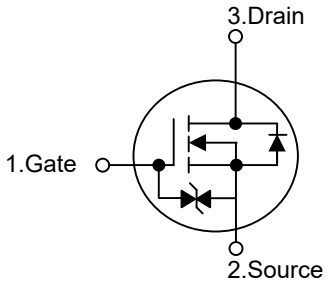
The UTC **UT3043Z** is N-CHannel enhancement mode Power MOSFET, designed with high density cell, with fast switching speed, low on-resistance, excellent thermal and electrical capabilities and operation with low gate voltages.

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



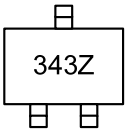
■ ORDERING INFORMATION

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

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±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	°C
Storage Temperature		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. 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	θ_{JA}	1250 (Note)	°C/W

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

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	20			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			10	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	0.4		1.3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=10mA			2.3	Ω
		V_{GS}=4.5V, I_D=255mA			2.5	Ω
		V_{GS}=2.5V, I_D=1mA			4.5	Ω
		V_{GS}=1.8V, I_D=1mA			5.5	Ω
		V_{GS}=1.65V, I_D=1mA			6.0	Ω
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{DS}=10V, V_{GS}=0V, f=1MHz		22		pF
Output Capacitance	C_{OSS}			14.5		pF
Reverse Transfer Capacitance	C_{RSS}			7.8		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge (Note 1)	Q_G	V_{DS}=10V, V_{GS}=4.5V, I_D=255mA (Note 1, 2)		3.4		nC
Gate-Source Charge	Q_{GS}			0.6		nC
Gate-Drain Charge	Q_{GD}			0.5		nC
Turn-On Delay Time (Note 1)	$t_{D(ON)}$	V_{DS} =10V, V_{GS}=4.5V, I_D=255mA, R_G =6Ω (Note 1, 2)		6		ns
Turn-On Rise Time	t_R			10		ns
Turn-Off Delay Time	$t_{D(OFF)}$			13		ns
Turn-Off Fall Time	t_F			17		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I_S				255	mA
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				400	mA
Drain-Source Diode Forward Voltage (Note 1)	V_{SD}	I_S=255mA, V_{GS}=0V			1.4	V

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle≤2%.
2. Essentially independent of operating temperature.