



02N06Z

Power MOSFET

0.2A, 60V SILICON N-CHANNEL MOSFET

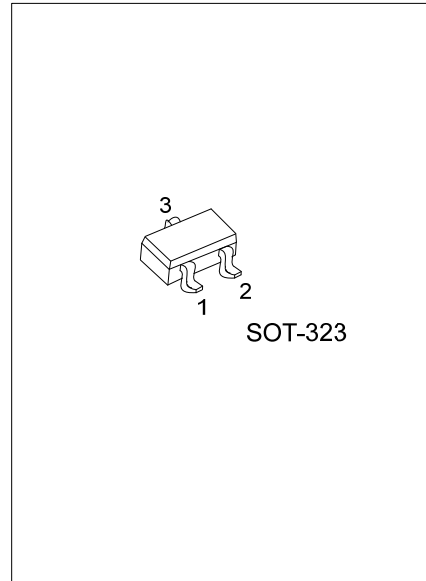
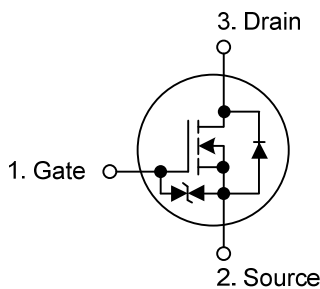
DESCRIPTION

The UTC **02N06Z** is a silicon N-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switching speed and low gate charge.

FEATURES

- * $R_{DS(ON)} \leq 2.4\Omega$ @ $V_{GS}=10V, I_D=200mA$
- * $R_{DS(ON)} \leq 4.0\Omega$ @ $V_{GS}=4V, I_D=200mA$
- * High switching speed
- * Low gate charge
- * High ESD

SYMBOL



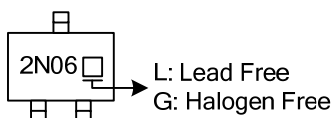
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
02N06ZL-AL3-R	02N06ZG-AL3-R	SOT-323	G	S	D	Tape Reel

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

02N06ZG-AL3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL3: SOT-323
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	200	mA
	Pulsed (Note 2)	I_{DM}	800	mA
Source Current	Continuous	I_S	200	mA
	Pulsed (Note 2)	I_{SP}	800	mA
Power Dissipation (Note 3)		P_D	200	mW
Channel Temperature		T_{CH}	+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. $P_W \leq 10\mu\text{s}$, Duty cycle $\leq 1\%$

3. Each terminal mounted on a recommended

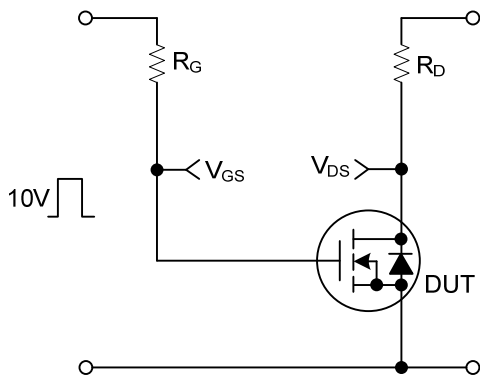
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=10\mu\text{A}, V_{GS}=0\text{V}$	60			V	
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1	μA	
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			+10	μA	
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			-10	μA	
ON CHARACTERISTICS								
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1		2.5	V	
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=200\text{mA}$		1.7	2.4	Ω	
			$V_{GS}=4\text{V}, I_D=200\text{mA}$		2.8	4.0	Ω	
Forward Transfer Admittance (Note 2)		$ Y_{FS} $	$V_{DS}=10\text{V}, I_D=200\text{mA}$	100			mS	
DYNAMIC PARAMETERS								
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1.0\text{MHz}$		15		pF	
Output Capacitance		C_{OSS}				8		pF
Reverse Transfer Capacitance		C_{RSS}				4		pF
SWITCHING PARAMETERS (Note 3)								
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, V_{DD}=30\text{V}, I_D=200\text{mA}$		2.2	4.4	nC	
Gate to Source Charge		Q_{GS}				0.6		nC
Gate to Drain Charge		Q_{GD}				0.3		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, V_{GS}=10\text{V}, I_D=100\text{mA}, R_{GS}=10\Omega, R_L=300\Omega$		6		ns	
Rise Time		t_R				5		ns
Turn-OFF Delay Time		$t_{D(OFF)}$				12		ns
Fall-Time		t_F				95		ns

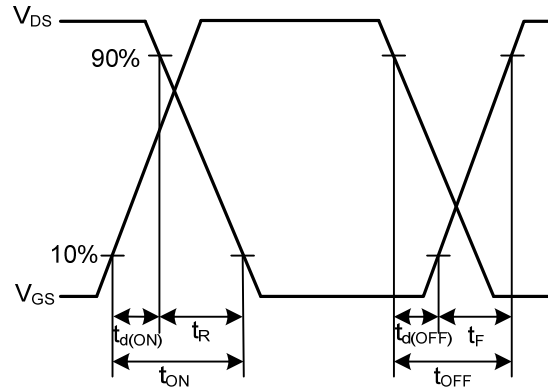
Notes: 1. $P_W \leq 300\mu\text{s}$, Duty cycle $\leq 1\%$

2. Pulsed

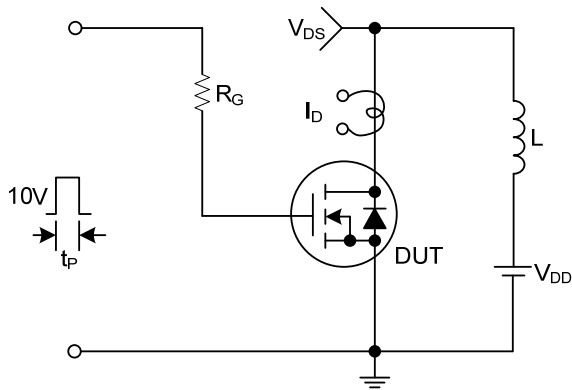
■ TEST CIRCUITS AND WAVEFORMS



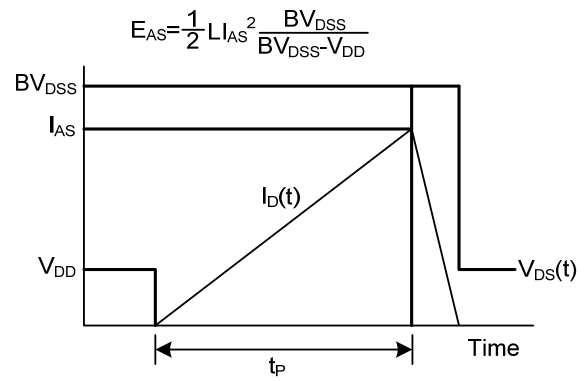
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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.