



02N06Z

Preliminary

Power MOSFET

0.2A, 60V SILICON N-CHANNEL MOSFET

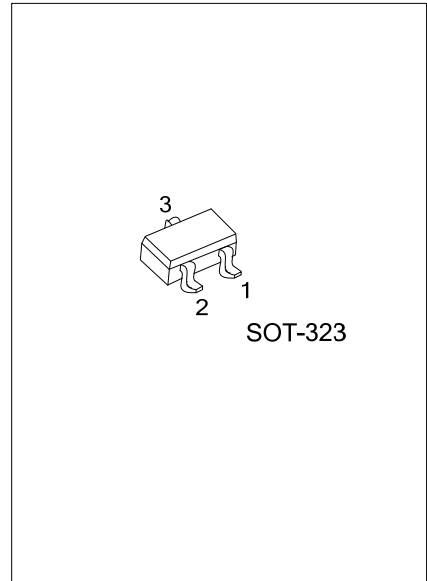
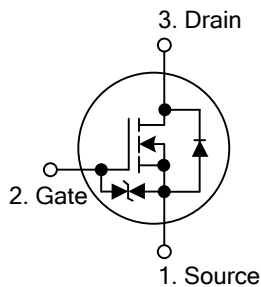
DESCRIPTION

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

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

SYMBOL



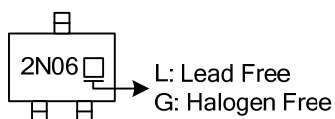
ORDERING INFORMATION

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

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

02N06ZL-AL3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL3: SOT-323
	(3)Lead Free	(3) L: Lead Free, G: Halogen Free

MARKING



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

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.

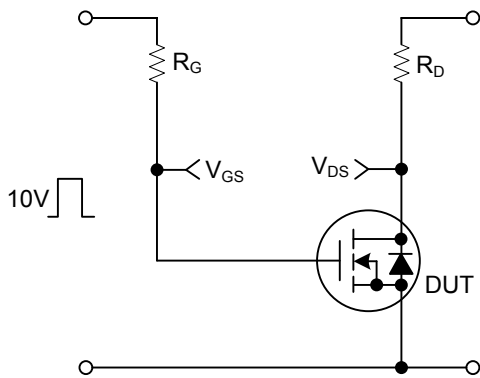
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

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

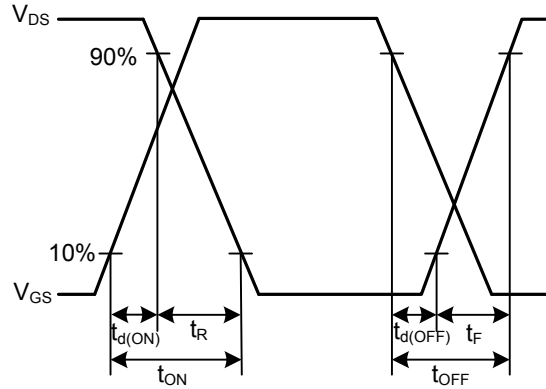
Notes: 1. $P_w \leq 300\mu\text{s}$, Duty cycle $\leq 1\%$.

2. Pulsed

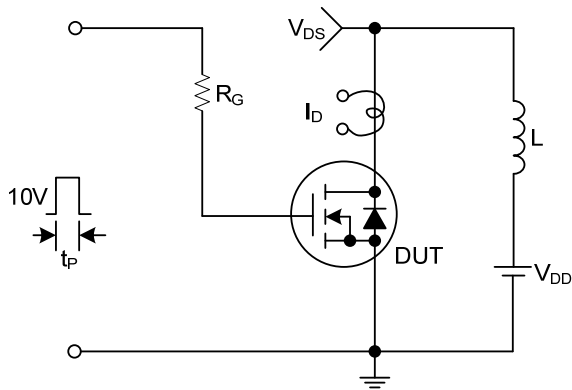
■ TEST CIRCUITS AND WAVEFORMS



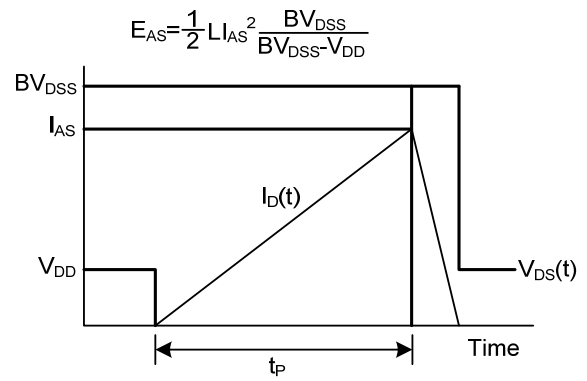
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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