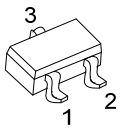
02N06Z

Power MOSFET

0.2A, 60V SILICON N-CHANNEL MOSFET



SOT-323

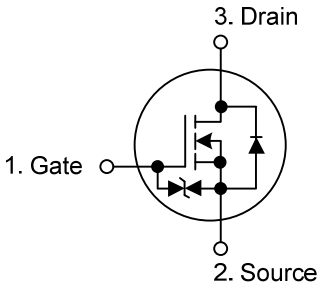
■ DESCRIPTION

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

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

■ SYMBOL



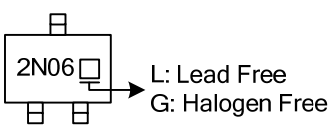
■ ORDERING INFORMATION

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

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°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	°C
Storage Temperature Range		T_{STG}	-55 ~ +150	°C

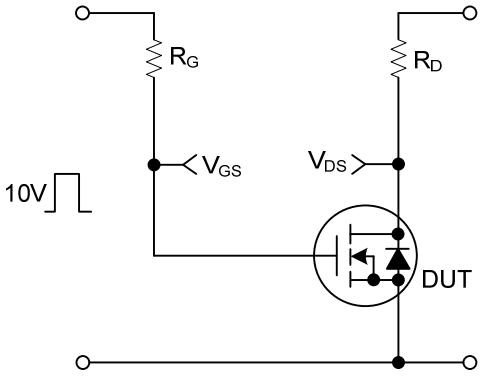
Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. P_W ≤ 10μs, Duty cycle ≤ 1%
3. Each terminal mounted on a recommended

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

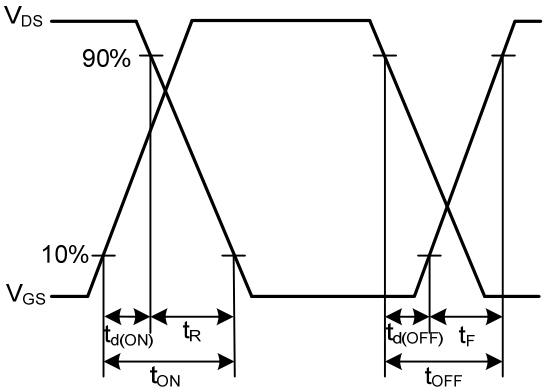
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=10μA, V_{GS}=0V	60			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+10	μA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-10	μA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=10V, I_D=1mA	1		2.5	V
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	V_{GS}=10V, I_D=200mA		1.7	2.4	Ω
			V_{GS}=4V, I_D=200mA		2.8	4.0	Ω
Forward Transfer Admittance (Note 2)		$\|Y_{FS}\|$	V_{DS}=10V, I_D=200mA	100			mS
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=10V, f=1.0MHz		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}=10V, V_{DD}=30V, I_D=200mA		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}=30V, V_{GS}=10V, I_D=100mA, R_{GS}=10Ω, R_L=300Ω		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 ≤ 300μs, Duty cycle ≤ 1%
2. Pulsed

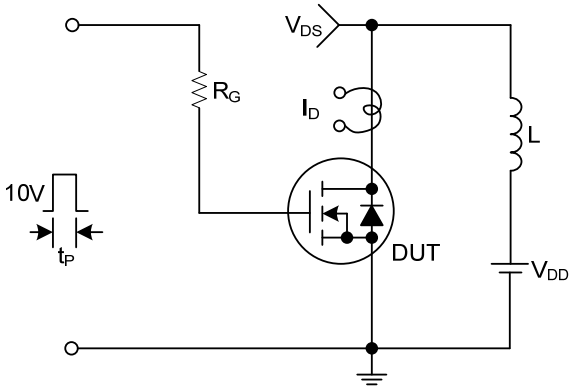
■ TEST CIRCUITS AND WAVEFORMS



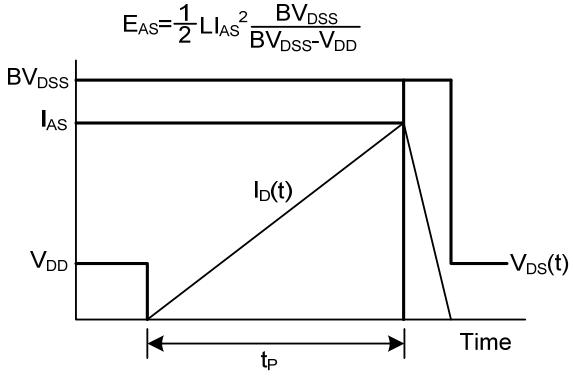
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms