



02N35Z

Power MOSFET

200mA, 350V N-CHANNEL POWER MOSFET

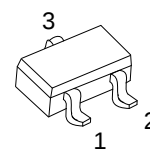
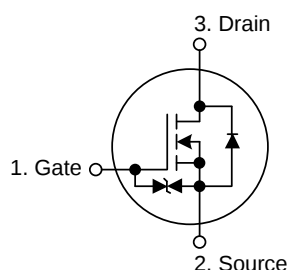
DESCRIPTION

The UTC **02N35Z** 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

- * $R_{DS(ON)} \leq 7.5\Omega$ @ $V_{GS}=10V$, $I_D=0.1A$
 $R_{DS(ON)} \leq 8.0\Omega$ @ $V_{GS}=4.5V$, $I_D=0.1A$
- * High switching speed
- * Low input capacitance

SYMBOL



SOT-23
(EIAJ SC-59)

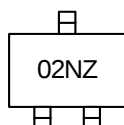
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
02N35ZL-AE3-R	02N35ZG-AE3-R	SOT-23	G	S	D	Tape Reel

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

02N35ZG-AE3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(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}	350	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current	Continuous	I_D	0.2	A
	Pulsed (Note 2)	I_{DM}	0.4	A
Power Dissipation		P_D	0.3	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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	350	$^{\circ}\text{C/W}$

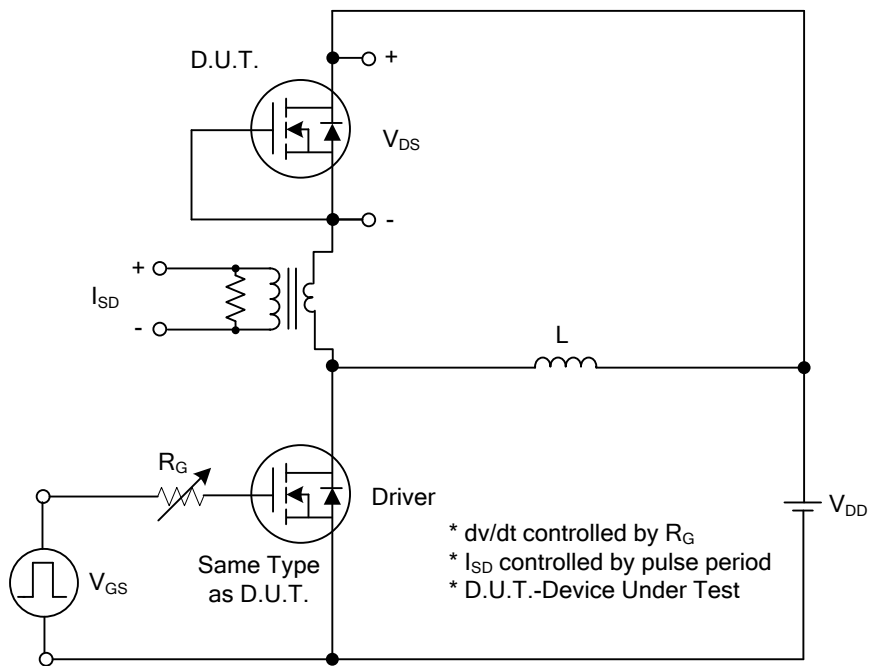
■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	350			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =350V, V _{GS} =0V			10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
Drain to Source On-state Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =0.1A			7.5	Ω
		V _{GS} =4.5V, I _D =0.1A			8.0	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		97.5		pF
Output Capacitance	C _{OSS}			16		pF
Reverse Transfer Capacitance	C _{RSS}			3.2		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note 1)	Q _G	V _{DS} =280V, V _{GS} =10V, I _D =200mA, I _G =1mA (Note 1, 2)		7.3		nC
Gate Source Charge	Q _{GS}			1.1		nC
Gate Drain Charge	Q _{GD}			0.6		nC
Turn-ON Delay Time (Note 1)	t _{D(ON)}	V _{DD} =100V, V _{GS} =10V, I _D =200mA, R _G =25Ω (Note 1, 2)		2.9		ns
Turn-ON Rise Time	t _R			16.34		ns
Turn-OFF Delay Time	t _{D(OFF)}			21		ns
Turn-OFF Fall-Time	t _F			39.28		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				0.2	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				0.4	A
Drain-Source Diode Forward Voltage (Note 1)	V _{SD}	I _S =200mA, V _{GS} =0V			1.4	V

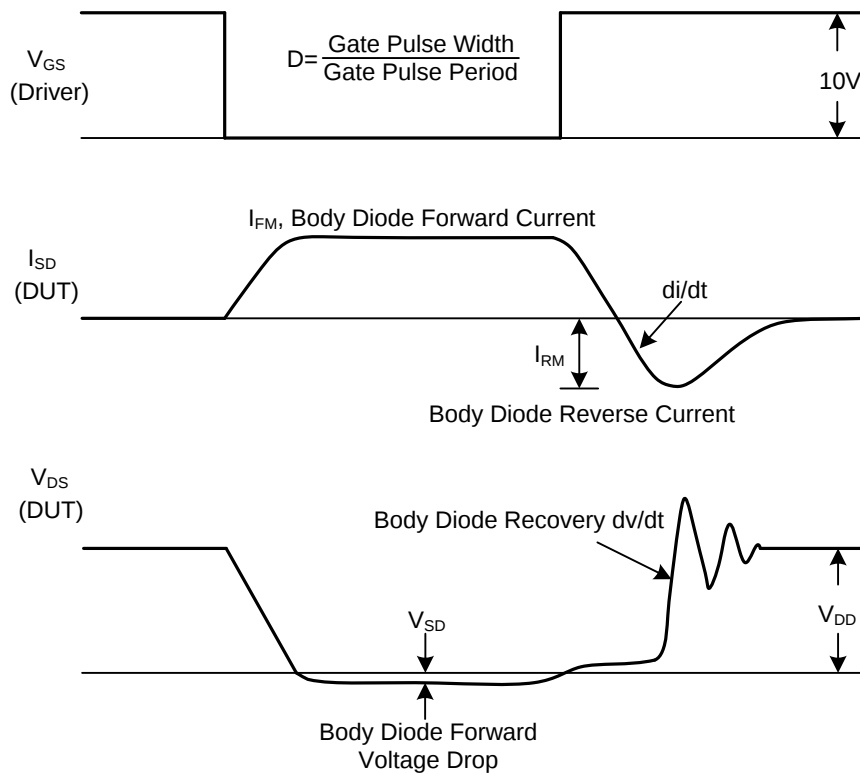
Notes: 1. Pulse Test : Pulse width $\leq 3500\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating ambient temperature.

■ TEST CIRCUITS AND WAVEFORMS

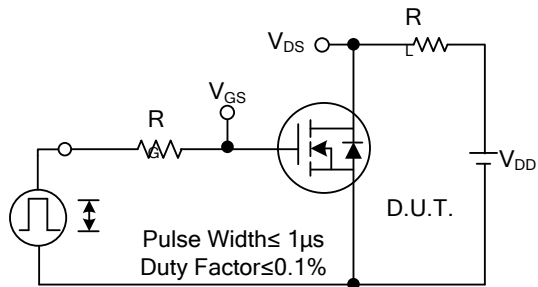


Peak Diode Recovery dv/dt Test Circuit

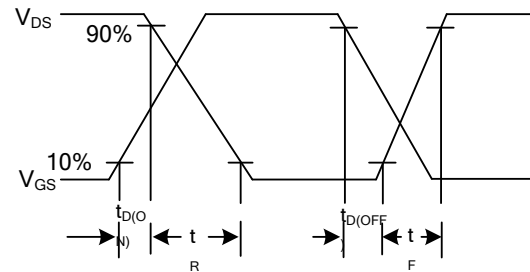


Peak Diode Recovery dv/dt Waveforms

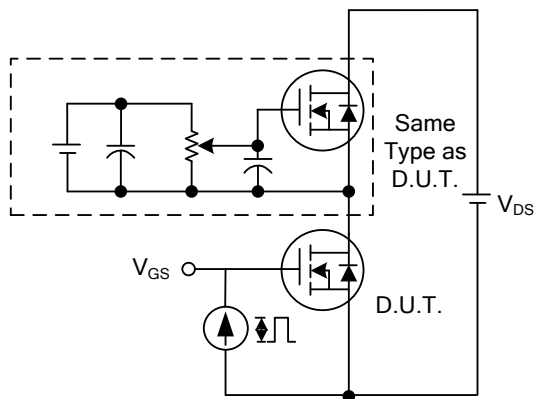
■ TEST CIRCUITS AND WAVEFORMS



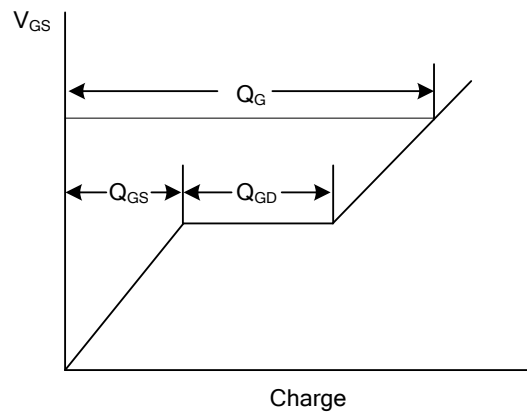
Switching Test Circuit



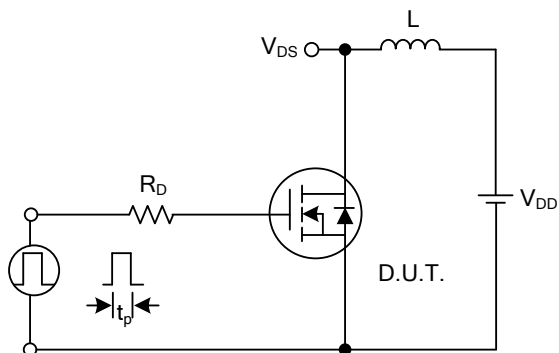
Switching Waveforms



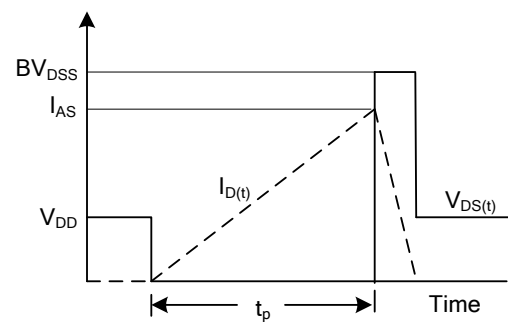
Gate Charge Test Circuit



Gate Charge Waveform

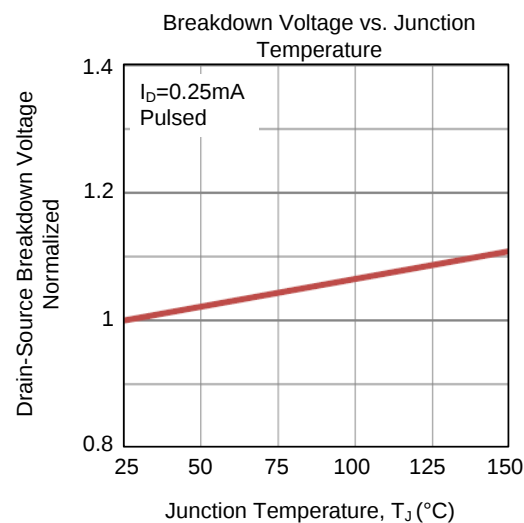
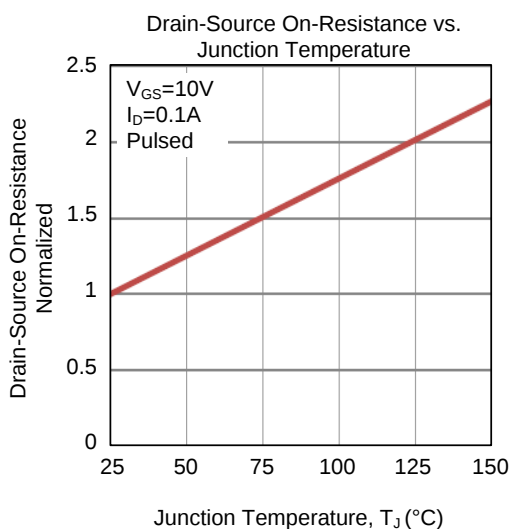
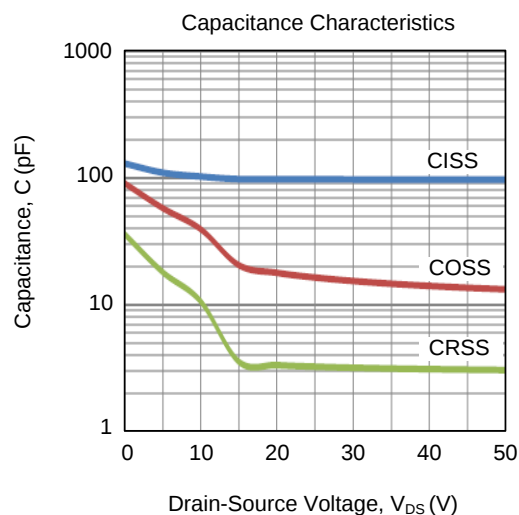
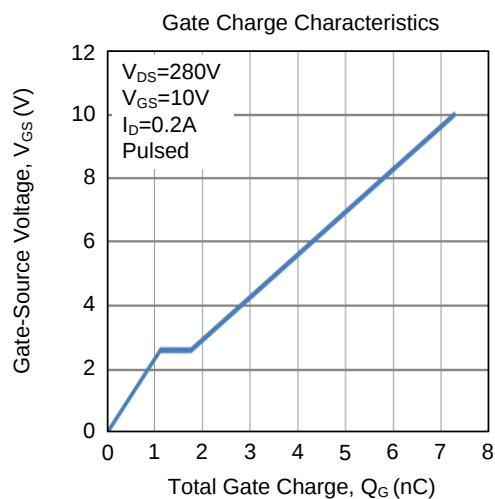
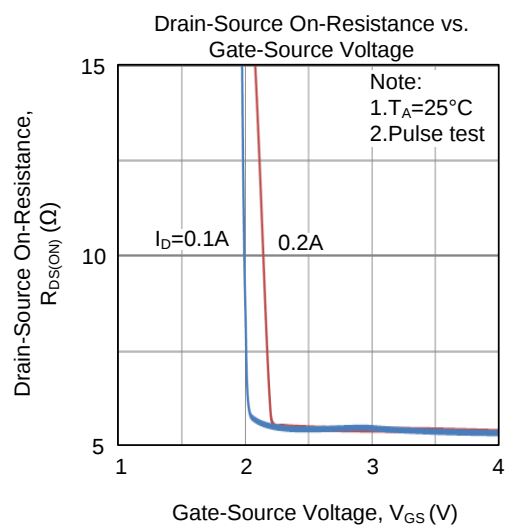
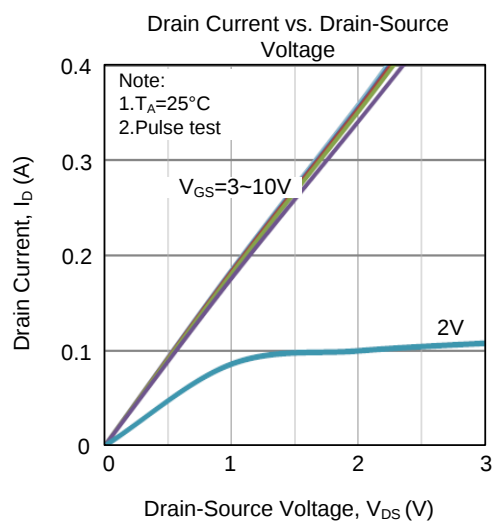


Unclamped Inductive Switching Test Circuit

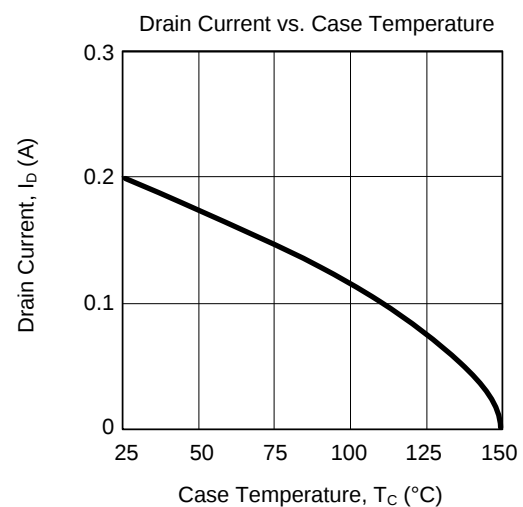
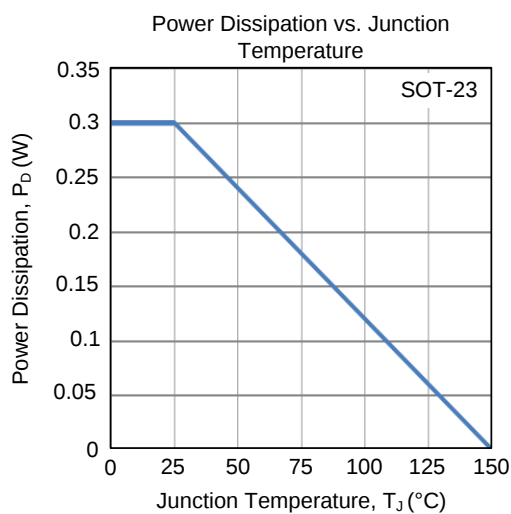
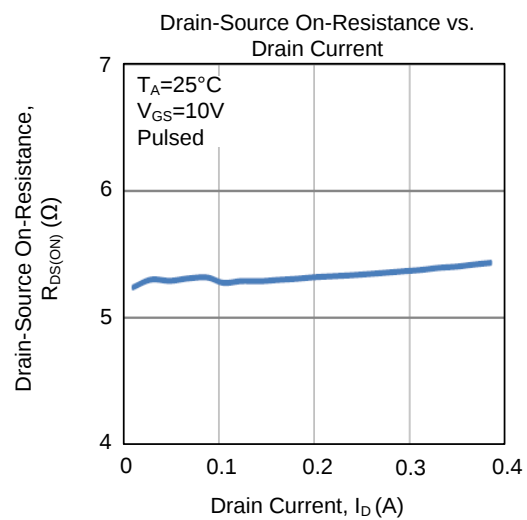
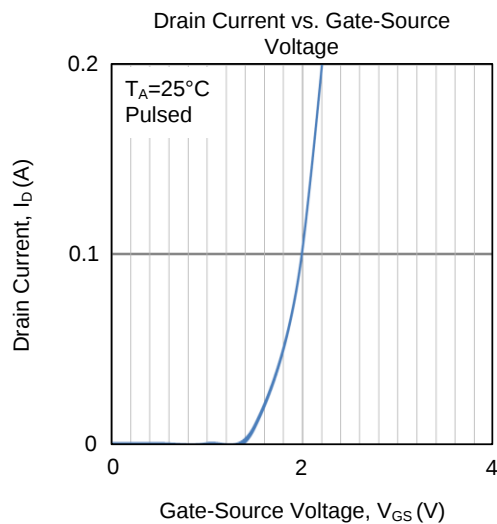
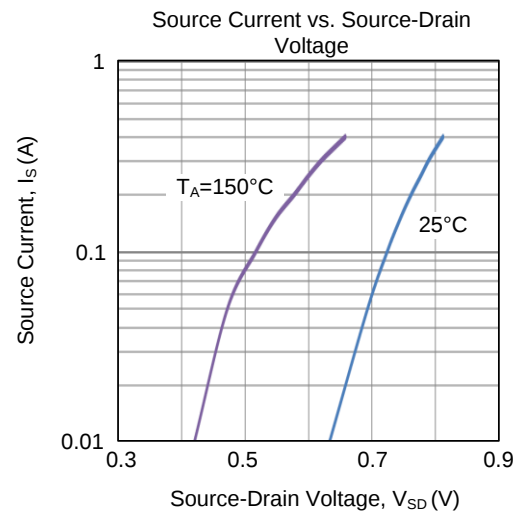
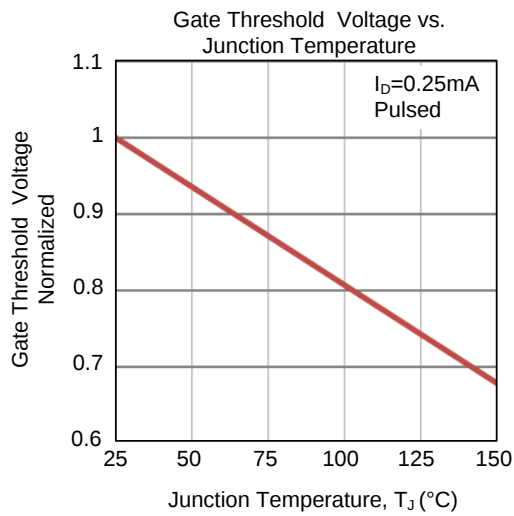


Unclamped Inductive Switching Waveforms

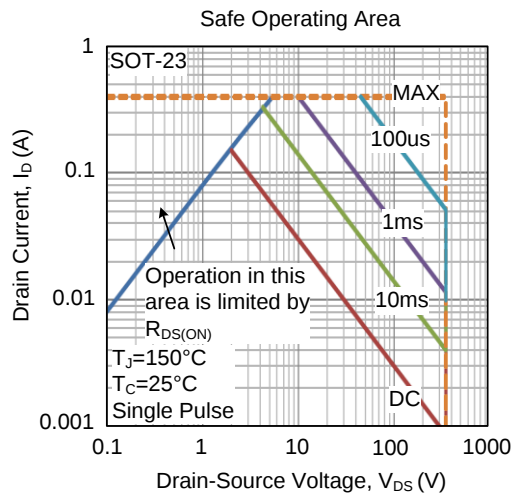
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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