



UT02N06VZ

Preliminary

Power MOSFET

N-CHANNEL LOGIC LEVEL ENHANCEMENT MODE

DESCRIPTION

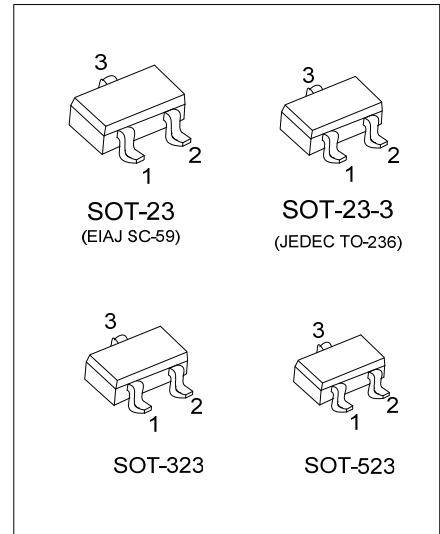
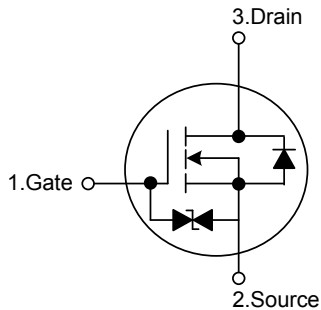
The **UT02N06VZ** employs advanced MOSFET technology and features low gate charge while maintaining low on-resistance.

Optimized for switching applications, this device improves the overall efficiency of DC/DC converters and allows operation to higher switching frequencies.

FEATURES

- * $R_{DS(ON)} \leq 4.0 \Omega$ @ $V_{GS}=4.5V$, $I_D=0.22A$
 $R_{DS(ON)} \leq 5.0 \Omega$ @ $V_{GS}=2.5V$, $I_D=0.20A$
- * Low Capacitance
- * Low Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified

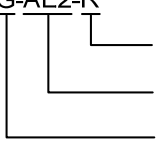
SYMBOL



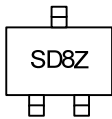
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT02N06VZL-AE2-R	UT02N06VZG-AE2-R	SOT-23-3	G	S	D	-	-	-	Tape Reel
UT02N06VZL-AE3-R	UT02N06VZG-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT02N06VZL-AL3-R	UT02N06VZG-AL3-R	SOT-323	G	S	D	-	-	-	Tape Reel
UT02N06VZL-AN3-R	UT02N06VZG-AN3-R	SOT-523	G	S	D	-	-	-	Tape Reel

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

<p>UT02N06VZG-AE2-R</p>  <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23, AL3: SOT-323 AN3: SOT-523 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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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}	± 8	V
Continuous Drain Current	DC	I_D	0.22	A
	Pulse		0.88	A
Peak Diode Recovery dv/dt		dv/dt	7.1	V/ns
Power Dissipation	SOT-23-3	P_D	0.35	W
	SOT-23		0.4	W
	SOT-323		0.2	W
	SOT-523		0.15	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23-3	θ_{JA}	357	$^\circ\text{C/W}$
	SOT-23		312	$^\circ\text{C/W}$
	SOT-323		625	$^\circ\text{C/W}$
	SOT-523		833	$^\circ\text{C/W}$

Note: Device mounted on FR-4 substrate P_C 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	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V			0.1	μA
Gate-Body Leakage, Forward	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±10	uA
ON CHARACTERISTICS (Note)						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.9	1.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.22A		2.4	4.0	Ω
		V _{GS} =2.5V, I _D =0.20A		3.2	5.0	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1MHz		21		pF
Output Capacitance	C _{OSS}			9.3		pF
Reverse Transfer Capacitance	C _{RSS}			4		pF
SWITCHING PARAMETERS (Note)						
Total Gate Charge	Q _G	V _{DS} =40V, V _{GS} =10V, I _D =0.22A		9.6		nC
Gate Source Charge	Q _{GS}			1.5		nC
Gate Drain Charge	Q _{GD}			0.7		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =30V, I _D =0.22A, V _{GS} =10V, R _G =6Ω		0.8		ns
Turn-ON Rise Time	t _R			16.5		ns
Turn-OFF Delay Time	t _{D(OFF)}			10		ns
Turn-OFF Fall-Time	t _F			19		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Max. Diode Forward Current	I _S				0.22	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S =0.44A (Note)		0.8	1.4	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =0.22A,		36		ns
Reverse Recovery Charge	Q _{rr}	d _i /d _t =100A/μs		5		nC

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

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