



UT03N03LZ

Preliminary

Power MOSFET

0.3A, 30V N-CHANNEL LOGIC LEVEL ENHANCEMENT MODE

DESCRIPTION

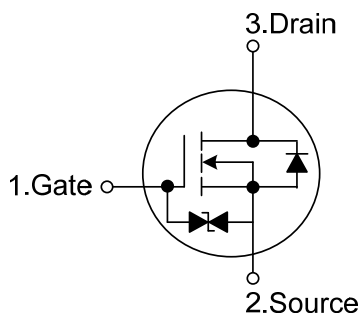
The **UT03N03LZ** employs advanced MOSFET technology and features low gate charge while maintaining low on-resistance.

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

FEATURES

- * $R_{DS(ON)} \leq 0.8 \Omega$ @ $V_{GS}=4.5V$, $I_D=0.3A$
 $R_{DS(ON)} \leq 1.2 \Omega$ @ $V_{GS}=2.5V$, $I_D=0.15A$
 $R_{DS(ON)} \leq 1.5 \Omega$ @ $V_{GS}=1.8V$, $I_D=0.15A$
- * Low Capacitance
- * Low Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified
- * With ESD protection

SYMBOL

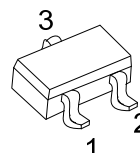


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT03N03LZL-AL3-R	UT03N03LZG-AL3-R	SOT-323	G	S	D	Tape Reel

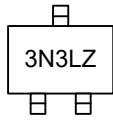
Note: Pin Assignment: G: Gate D: Drain S: Source

UT03N03LZG-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
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SOT-323

■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	DC	0.3	A
	Pulse	0.6	A
Peak Diode Recovery dv/dt (Note 2)	dv/dt	3.7	V/ns
Power Dissipation	P_D	0.2	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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. $I_{SD} \leq 0.3\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	312	$^\circ\text{C}/\text{W}$

Note: Device mounted on FR-4 substrate P_c board, 2oz copper, with 1inch square copper plate.

■ 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}	V _{GS} =0V, I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			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	0.3		1.2	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.3A			0.8	Ω
		V _{GS} =2.5V, I _D =0.15A			1.2	Ω
		V _{GS} =1.8V, I _D =0.15A			1.5	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1MHz		18		pF
Output Capacitance	C _{OSS}			10		pF
Reverse Transfer Capacitance	C _{RSS}			6		pF
SWITCHING PARAMETERS (Note)						
Total Gate Charge	Q _G	V _{DS} =24V, V _{GS} =10V, I _D =0.3A		8		nC
Gate Source Charge	Q _{GS}			0.8		nC
Gate Drain Charge	Q _{GD}			0.7		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, I _D =0.3A,V _{GS} =10V, R _G =3.3Ω		3		ns
Turn-ON Rise Time	t _{tr}			17		ns
Turn-OFF Delay Time	t _{D(OFF)}			57		ns
Turn-OFF Fall-Time	t _f			33		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Max. Diode Forward Current	I _s				0.3	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _s =0.3A			1.2	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _s =0.3A,		131		ns
Reverse Recovery Charge	Q _{rr}	dI/dt=100A/μs		125		nC

Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

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