

**UT3N01Z****Power MOSFET**

N-CHANNEL SILICON MOSFET GENERAL-PURPOSE SWITCHING DEVICE APPLICATIONS

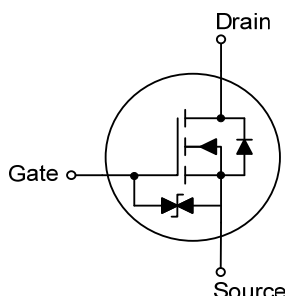
DESCRIPTION

This **UT3N01Z** is high-power MOSFET is produced using UTC trench technology, which is specifically designed to minimize gate charge and ultra low on resistance. This device is suitable for applications with low gate charge driving or ultra low on resistance requirements.

FEATURES

- * $R_{DS(ON)} \leq 2.0 \Omega$ @ $V_{GS}=4.0V$, $I_D=80mA$
- $R_{DS(ON)} \leq 3.0 \Omega$ @ $V_{GS}=2.5V$, $I_D=40mA$
- * Fast switching capability
- * Enhanced ESD capability

SYMBOL

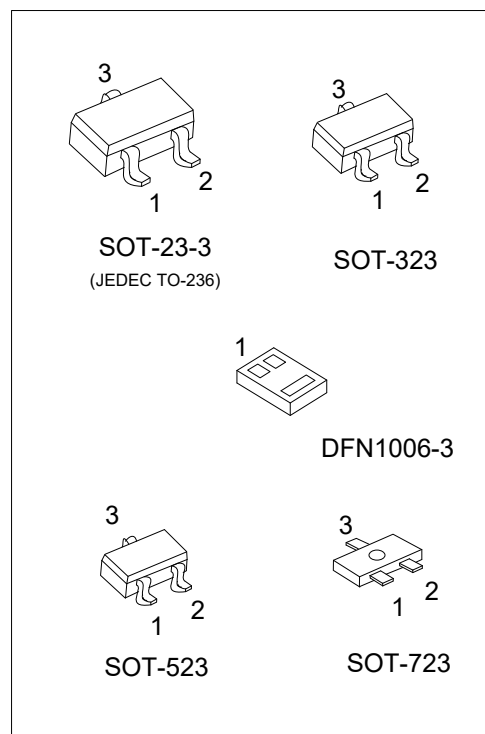


ORDERING INFORMATION

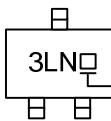
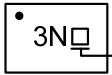
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3N01ZL-AE2-R	UT3N01ZG-AE2-R	SOT-23-3	G	S	D	Tape Reel
UT3N01ZL-AL3-R	UT3N01ZG-AL3-R	SOT-323	G	S	D	Tape Reel
UT3N01ZL-AN3-R	UT3N01ZG-AN3-R	SOT-523	G	S	D	Tape Reel
UT3N01ZL-AQ3-R	UT3N01ZG-AQ3-R	SOT-723	G	S	D	Tape Reel
UT3N01ZL-K03-1006-R	UT3N01ZG-K03-1006-R	DFN1006-3	G	S	D	Tape Reel

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

UT3N01ZG-AE2-R 		(1) R: Tape Reel (2) AE2: SOT-23-3, AL3: SOT-323, AN3: SOT-523 AQ3: SOT-723, K03-1006: DFN1006-3 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-23-3 / SOT-323 / SOT-523 / SOT-723	DFN1006-3
 L: Lead Free G: Halogen Free	 L: Lead Free G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±10	V
Drain Current	DC	I _D	0.15	A
	Pulse(Note 2)		0.6	A
Power Dissipation	SOT-23-3	P _D	330	mW
	SOT-323		200	mW
	SOT-523		150	mW
	SOT-723		100	mW
	DFN1006-3		360	mW
Operating Temperature		T _{OPR}	-40 ~ +85	°C
Storage Temperature		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. Repetitive Rating: Pulse width limited by maximum junction temperature.

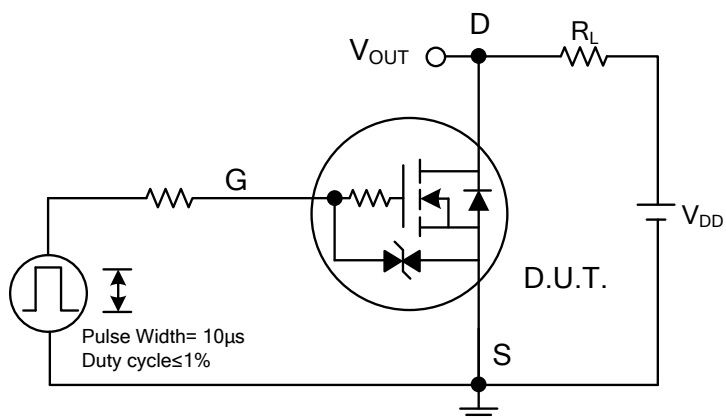
3. Pulse width ≤ 10μs, Duty cycle ≤ 1%.

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

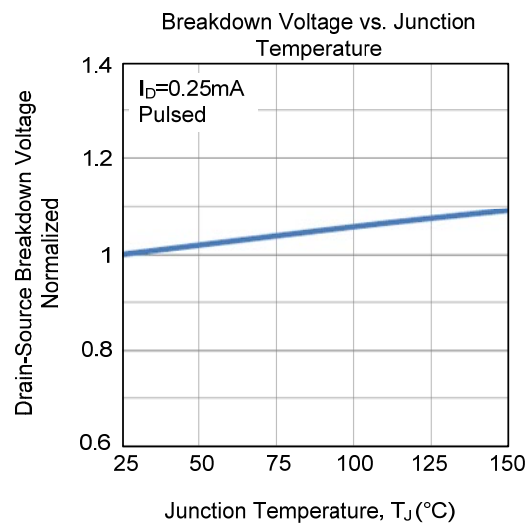
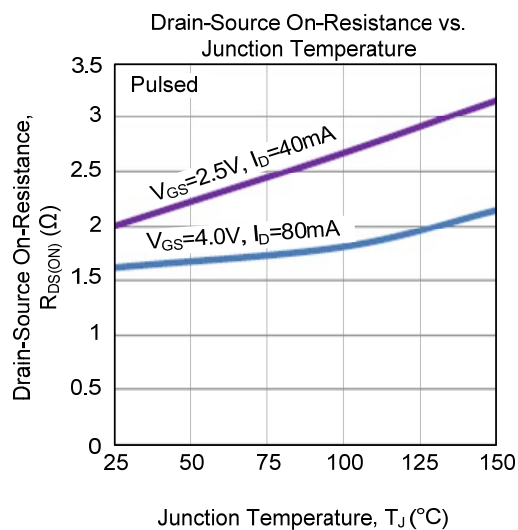
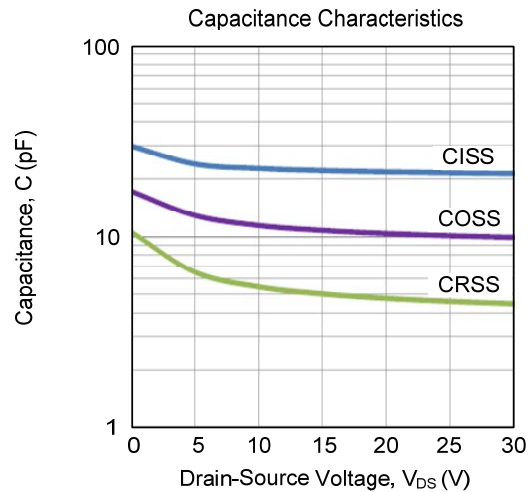
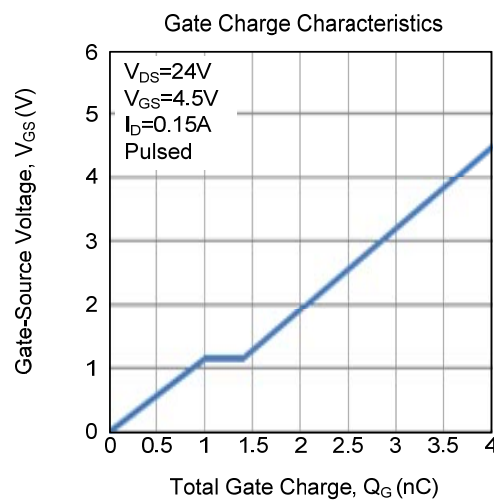
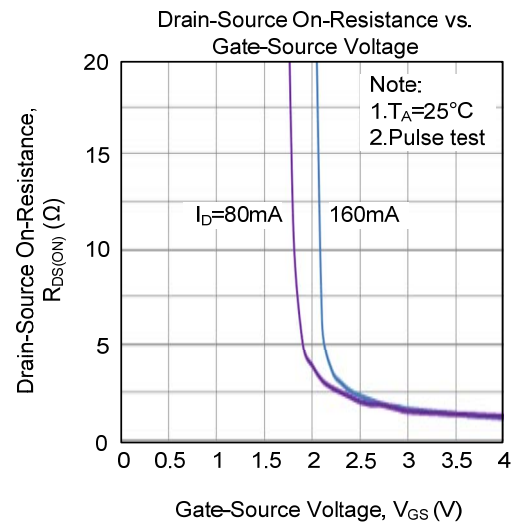
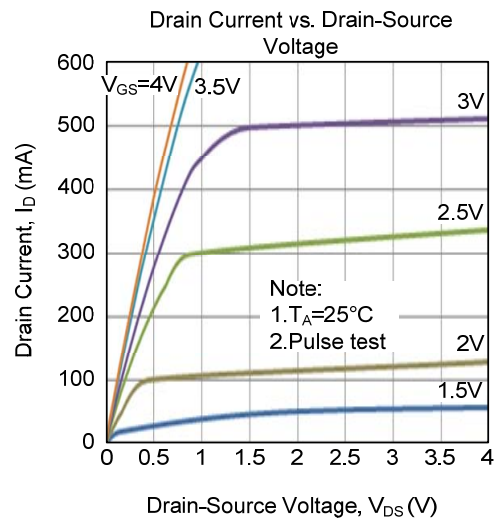
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =1mA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
ON CHARACTERISTICS						
Cutoff Threshold Voltage	V _{GS(TH)}	V _{DS} =10V, I _D =100μA	0.4		1.3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =80mA		1.1	1.8	Ω
		V _{GS} =4.0V, I _D =80mA		1.4	2.0	Ω
		V _{GS} =2.5V, I _D =40mA		2.1	3.0	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0 V, f=1.0MHz		23		pF
Output Capacitance	C _{OSS}			11		pF
Reverse Transfer Capacitance	C _{RSS}			5.4		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =24V, V _{GS} =4.5V, I _D =150mA		4		nC
Gate Source Charge	Q _{GS}			1		nC
Gate Drain Charge	Q _{GD}			0.4		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =15V, I _D =150mA, R _G =3.3Ω		1.2		ns
Turn-ON Rise Time	t _R			16		ns
Turn-OFF Delay Time	t _{D(OFF)}			10		ns
Turn-OFF Fall-Time	t _F			20		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =150mA, V _{GS} =0V		0.87	1.2	V

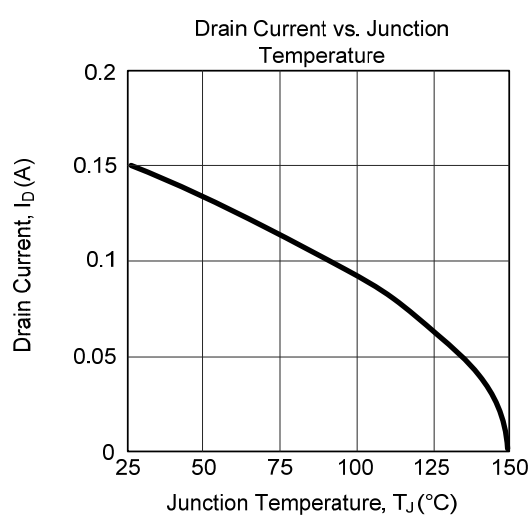
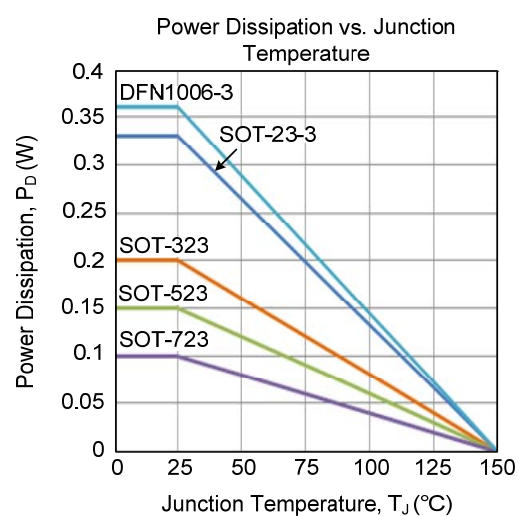
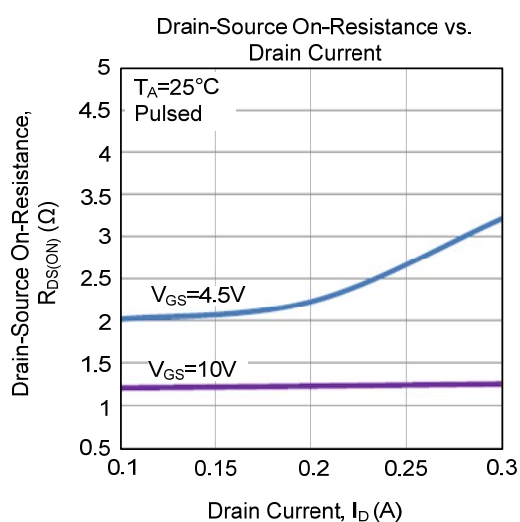
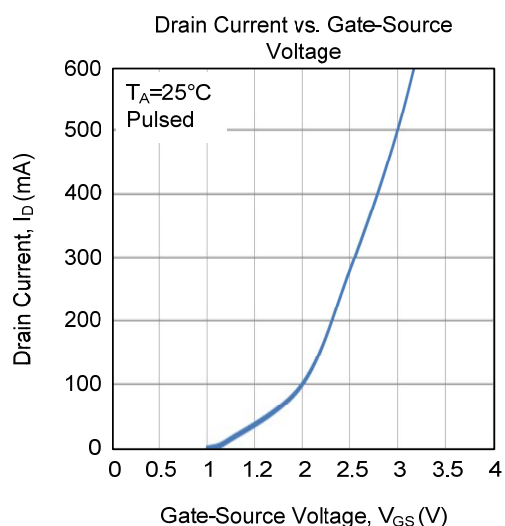
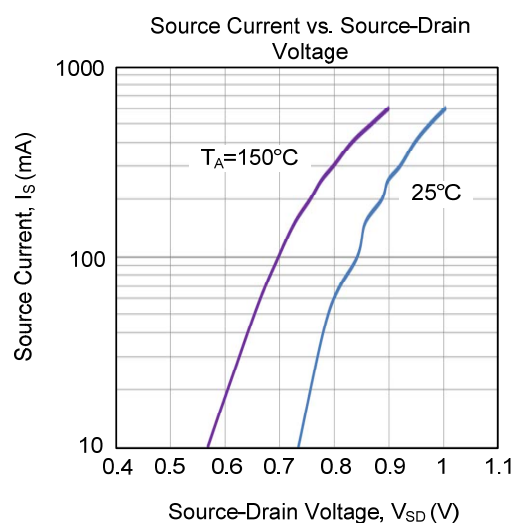
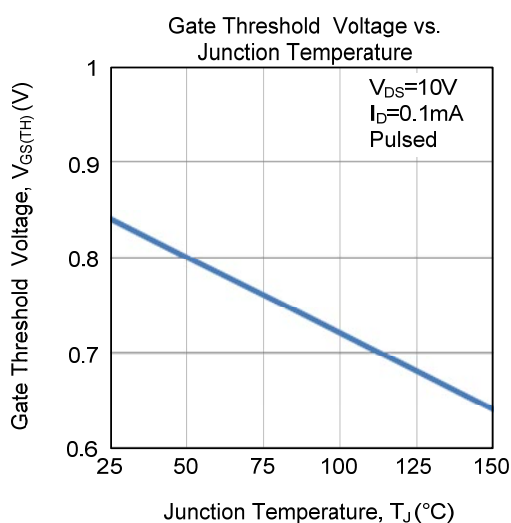
■ SWITCHING TIME TEST CIRCUIT



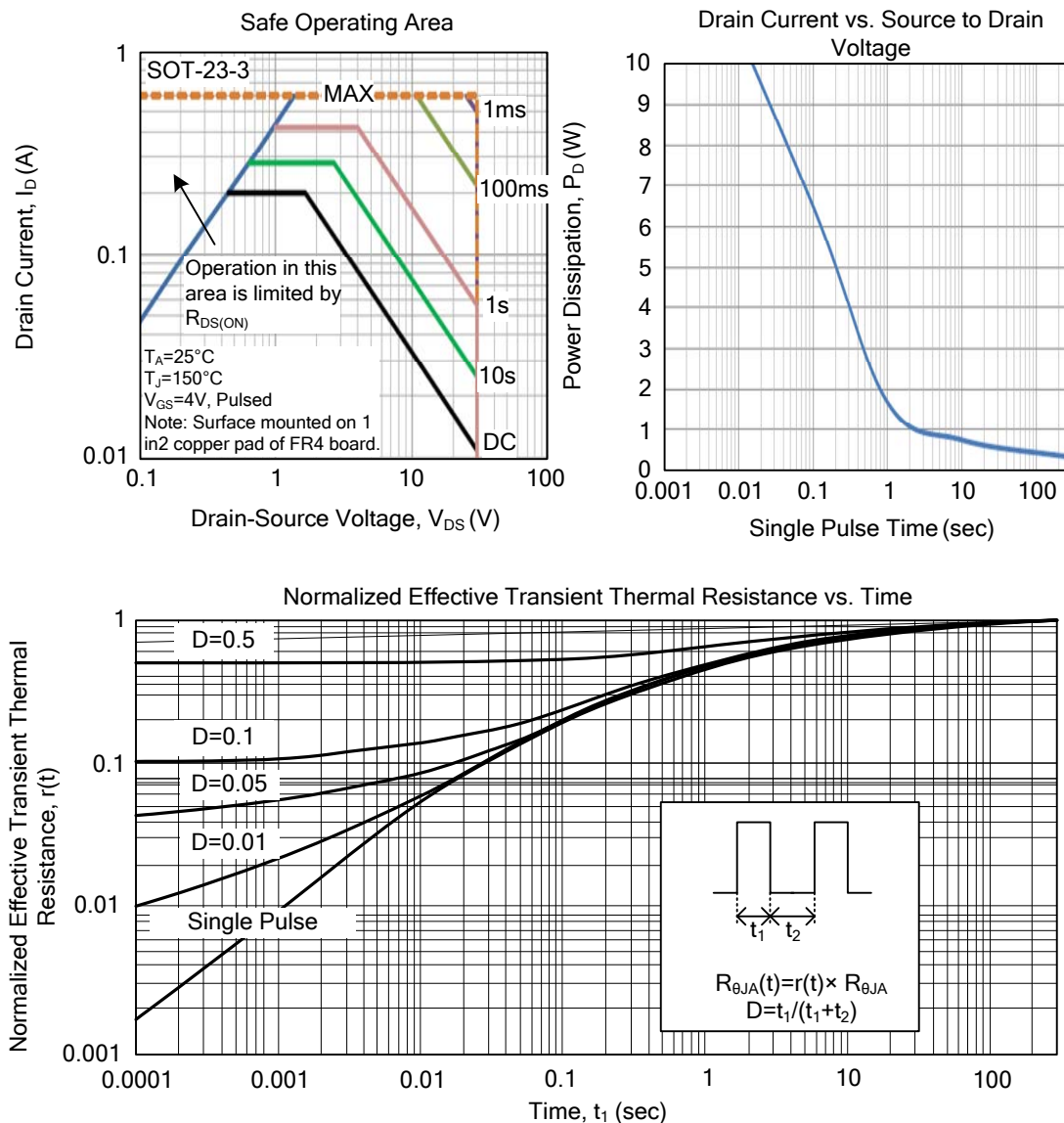
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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