



## UK3018

Preliminary

Power MOSFET

### 2.5V DRIVE SILICON N-CHANNEL MOSFET

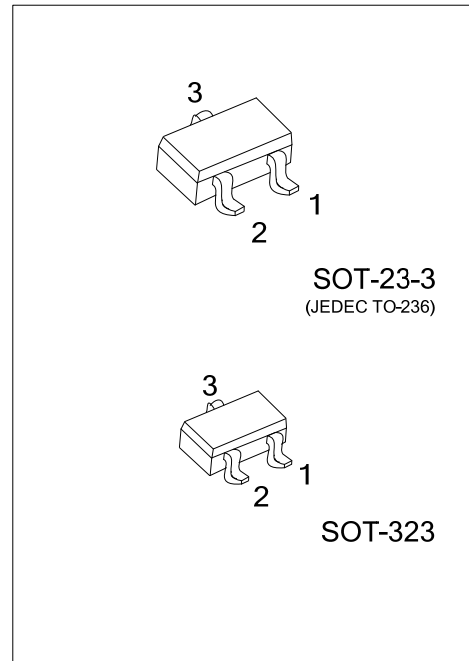
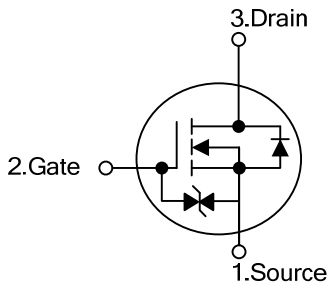
#### DESCRIPTION

The UTC **UK3018** is a Silicon N-channel MOSFET, designed to minimize on-state resistance while it provides rugged, reliable and fast switching performance. The product is particularly suited for low voltage and low current applications such as small servo motor controllers, power MOSFET gate drivers, and other switching applications.

#### FEATURES

- \* Min  $V_{DSS} = 30V$
- \*  $R_{DS(ON)} = 5\Omega (V_{GS}=4V)$
- \*  $R_{DS(ON)} = 7\Omega (V_{GS}=2.5V)$
- \* Pulsed  $I_D = 400mA$
- \* Low voltage drive (2.5V)
- \* Halogen Free

#### SYMBOL

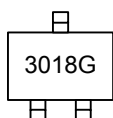


#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UK3018G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UK3018G-AL3-R	SOT-323	S	G	D	Tape Reel

<p>UK3018G-AE2-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Halogen Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AL3: SOT-323</p> <p>(3) G: Halogen Free</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATING (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	100
	Pulsed (Note 2)	I <sub>DP</sub>	400
Power Dissipation (Note 3)	P <sub>D</sub>	200	mW
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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. Pw ≤ 10μs, Duty cycle ≤ 1%

3. With each pin mounted on the recommended lands.

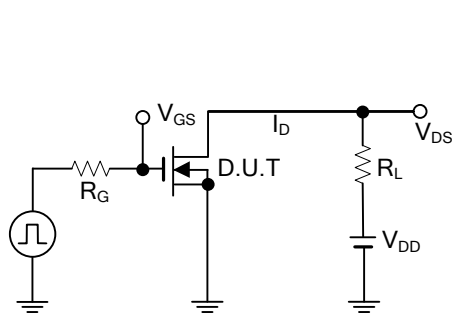
■ THERMAL RESISTANCE

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	625	°C/W

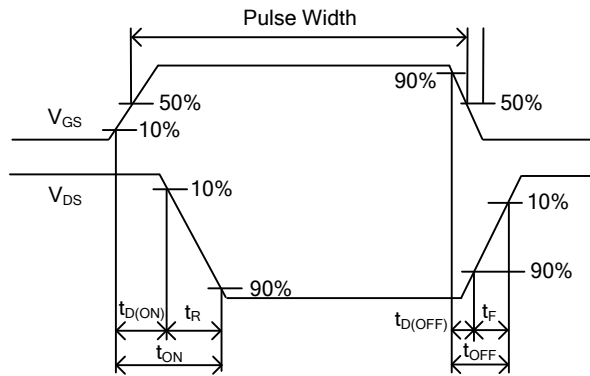
■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =10μA	30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V,			±1	μA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =3V, I <sub>D</sub> =100μA	0.8		1.5	V
Static drain-source on-state resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =4V, I <sub>D</sub> =10mA,		5	8	Ω
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =1mA,		7	13	Ω
<b>DYNAMIC PARAMETERS</b>						
Input capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = 5V, V <sub>GS</sub> = 0V, f = 1MHz		13		pF
Output capacitance	C <sub>OSS</sub>			9		pF
Reverse transfer capacitance	C <sub>RSS</sub>			4		pF
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>GS</sub> = 5V, V <sub>DD</sub> ≈ 5V I <sub>D</sub> = 10mA, R <sub>L</sub> = 500Ω, R <sub>G</sub> = 10Ω		15		ns
Turn-ON Rise Time	t <sub>R</sub>			35		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			80		ns
Turn-OFF Fall-Time	t <sub>F</sub>			80		ns

■ TEST CIRCUITS AND WAVEFORMS



Switching Time Measurement Circuit



Switching Time Waveforms

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