



## UK3018BW

Preliminary

Power MOSFET

### 2.5V DRIVE SILICON N-CHANNEL MOSFET

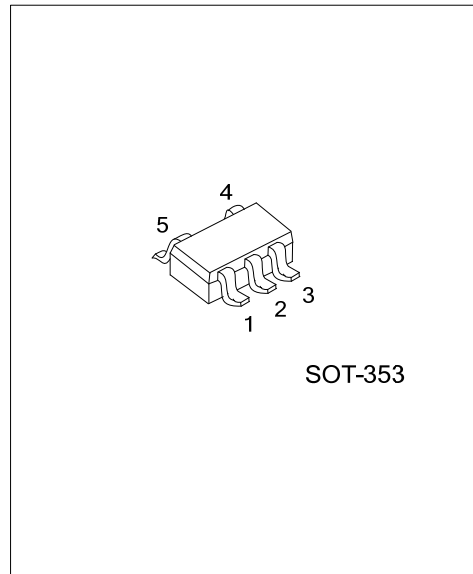
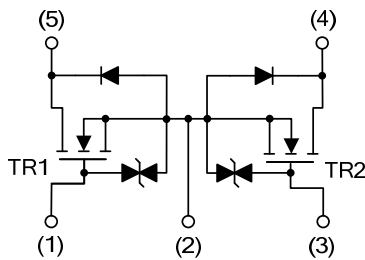
#### DESCRIPTION

The UTC **UK3018BW** 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)

#### EQUIVALENT CIRCUIT



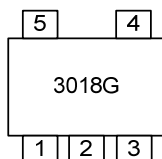
SOT-353

#### ORDERING INFORMATION

Order Number	Package	Pin Assignment					Packing
		1	2	3	4	5	
UK3018BWG-AL5-R	SOT-353	G1	S1S2	G2	D2	D1	Tape Reel

UK3018BWG-AL5-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL5: SOT-353
	(3)Green Package	(3) G: Halogen Free and Lead Free

#### MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	100	mA
	Pulsed (Note 2)	$I_{DP}$	400	mA
Power Dissipation (Note 3)		$P_D$	200	mW
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.  $P_w \leq 10\mu\text{s}$ , Duty cycle  $\leq 1\%$

3. With each pin mounted on the recommended lands.

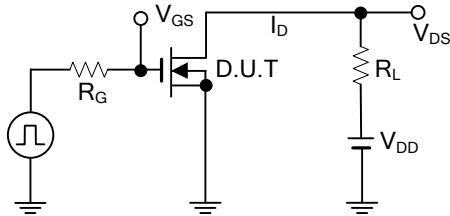
■ THERMAL RESISTANCE

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	625	$^{\circ}\text{C}/\text{W}$

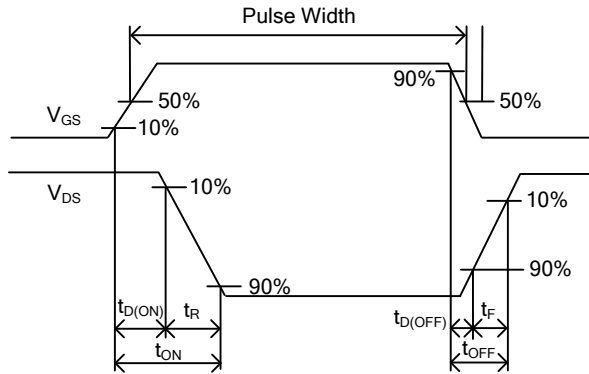
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0\text{V}$ , $I_D=10\mu\text{A}$	30			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=30\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$ ,			$\pm 1$	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=3\text{V}$ , $I_D=100\mu\text{A}$	0.8		1.5	V
Static drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=4\text{V}$ , $I_D=10\text{mA}$ ,		5	8	$\Omega$
		$V_{GS}=2.5\text{V}$ , $I_D=1\text{mA}$ ,		7	13	$\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input capacitance	$C_{ISS}$	$V_{DS} = 5\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$		13		pF
Output capacitance	$C_{OSS}$			9		pF
Reverse transfer capacitance	$C_{RSS}$			4		pF
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS} = 5\text{V}$ , $V_{DD} \approx 5\text{V}$ $I_D = 10\text{mA}$ , $R_L = 500\Omega$ , $R_G = 10\Omega$		15		ns
Turn-ON Rise Time	$t_R$			35		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			80		ns
Turn-OFF Fall-Time	$t_F$			80		ns

■ TEST CIRCUITS AND WAVEFORMS



Switching Time Measurement Circuit



Switching Time Waveforms

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