



## UK2158

Preliminary

Power MOSFET

### ±0.1A, 50V N-CHANNEL MOSFET FOR HIGH-SPEED SWITCHING

#### DESCRIPTION

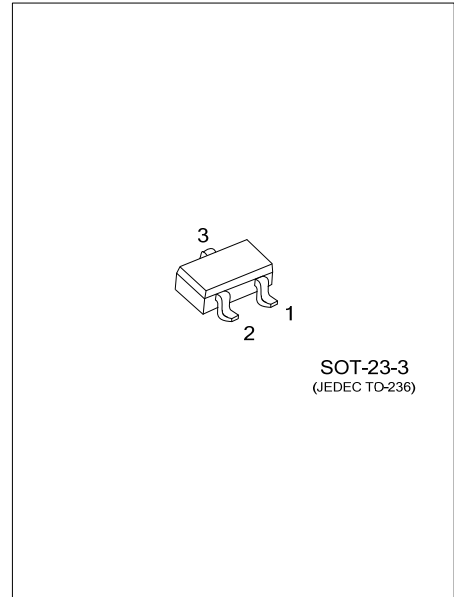
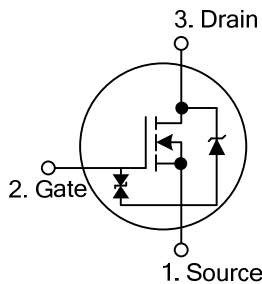
The UTC **UK2158** is an N-channel vertical type MOSFET, it uses UTC's advanced technology to provide customers with high switching speed and low gate cut-off voltage.

The UTC **UK2158** is suitable for use in low-voltage portable systems such as camcorders and headphone stereo sets.

#### FEATURES

- \*  $R_{DS(ON)} < 50\Omega$  @  $V_{GS} = 1.5V, I_D = 1.0mA$
- $R_{DS(ON)} < 20\Omega$  @  $V_{GS} = 2.5V, I_D = 10mA$
- $R_{DS(ON)} < 15\Omega$  @  $V_{GS} = 4.0V, I_D = 10mA$
- \* High switching speed
- \* Low gate cut-off voltage

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UK2158L-AE2-R	UK2158G-AE2-R	SOT-23-3	S	G	D	Tape Reel

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

UK2158L-AE2-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE2: SOT-23-3
	(3)Lead Free	(3) L: Lead Free, G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (V <sub>GS</sub> =0)		V <sub>DSS</sub>	50	V
Gate-Source Voltage (V <sub>GS</sub> =0)		V <sub>GSS</sub>	±7.0	V
Drain Current	DC	I <sub>D(DC)</sub>	±0.1	A
	Pulse (PW≤10ms, Duty Cycle≤50%)	I <sub>D(PULSE)</sub>	±0.2	A
Power Dissipation		P <sub>D</sub>	200	mW
Channel Temperature		T <sub>CH</sub>	150	°C
Storage Temperature Range		T <sub>STG</sub>	-55~+150	°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.

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Leakage Current		I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V			1.0	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub>	V <sub>GS</sub> =+7.0V, V <sub>DS</sub> =0V			+3.0	μA
	Reverse		V <sub>GS</sub> =-7.0V, V <sub>DS</sub> =0V			-3.0	μA
<b>ON CHARACTERISTICS</b>							
Gate Cut-off Voltage		V <sub>GS(OFF)</sub>	V <sub>DS</sub> =3V, I <sub>D</sub> =1.0μA	0.5	0.7	1.1	V
Static Drain-Source On-State Resistance		R <sub>DS(ON)</sub>	V <sub>GS</sub> =1.5V, I <sub>D</sub> =1.0mA		32	50	Ω
			V <sub>GS</sub> =2.5V, I <sub>D</sub> =10mA		16	20	Ω
			V <sub>GS</sub> =4.0V, I <sub>D</sub> =10mA		12	15	Ω
Forward Transfer Admittance		y <sub>FS</sub>	V <sub>DS</sub> =3V, I <sub>D</sub> =10mA	20			mS
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =3V, f=1.0MHz		6		pF
Output Capacitance		C <sub>OSS</sub>			8		pF
Reverse Transfer Capacitance		C <sub>RSS</sub>			1		pF
<b>SWITCHING PARAMETERS</b>							
Turn-ON Delay Time		t <sub>D(ON)</sub>	V <sub>DD</sub> =3V, V <sub>GS(ON)</sub> =3V, I <sub>D</sub> =20mA, R <sub>G</sub> =10Ω, R <sub>L</sub> =150Ω		9		ns
Rise Time		t <sub>R</sub>			48		ns
Turn-OFF Delay Time		t <sub>D(OFF)</sub>			21		ns
Fall-Time		t <sub>F</sub>			31		ns

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