



UK2158

Preliminary

Power MOSFET

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

DESCRIPTION

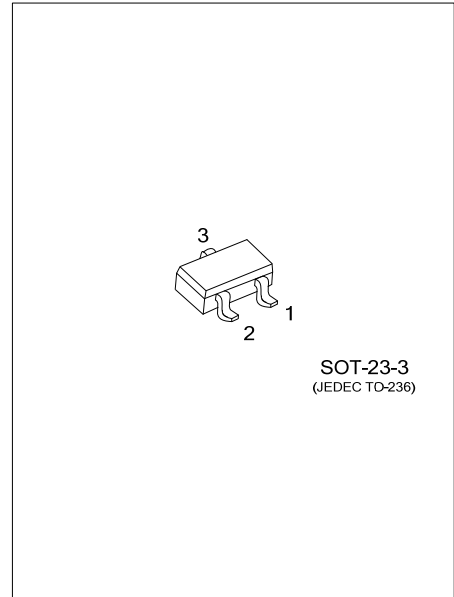
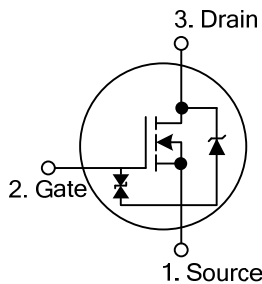
The UTC **UK2158** is an N-channel vertical type MOSFET, it uses UTC's advanced technology to provide customers with high switching speed and low gate cut-off voltage.

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 ($T_A=25^\circ\text{C}$)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage ($V_{GS}=0$)		V_{DSS}	50	V
Gate-Source Voltage ($V_{GS}=0$)		V_{GSS}	± 7.0	V
Drain Current	DC	$I_{D(DC)}$	± 0.1	A
	Pulse ($PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$)	$I_{D(PULSE)}$	± 0.2	A
Power Dissipation		P_D	200	mW
Channel Temperature		T_{CH}	150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55~+150	$^\circ\text{C}$

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 ($T_A=25^\circ\text{C}$)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=50\text{V}$, $V_{GS}=0\text{V}$			1.0	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+7.0\text{V}$, $V_{DS}=0\text{V}$			+3.0	μA
	Reverse		$V_{GS}=-7.0\text{V}$, $V_{DS}=0\text{V}$			-3.0	μA
ON CHARACTERISTICS							
Gate Cut-off Voltage		$V_{GS(OFF)}$	$V_{DS}=3\text{V}$, $I_D=1.0\mu\text{A}$	0.5	0.7	1.1	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=1.5\text{V}$, $I_D=1.0\text{mA}$		32	50	Ω
			$V_{GS}=2.5\text{V}$, $I_D=10\text{mA}$		16	20	Ω
			$V_{GS}=4.0\text{V}$, $I_D=10\text{mA}$		12	15	Ω
Forward Transfer Admittance		$ y_{FS} $	$V_{DS}=3\text{V}$, $I_D=10\text{mA}$	20			mS
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=3\text{V}$, $f=1.0\text{MHz}$		6		pF
Output Capacitance		C_{OSS}			8		pF
Reverse Transfer Capacitance		C_{RSS}			1		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=3\text{V}$, $V_{GS(ON)}=3\text{V}$, $I_D=20\text{mA}$, $R_G=10\Omega$, $R_L=150\Omega$		9		ns
Rise Time		t_R			48		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			21		ns
Fall-Time		t_F			31		ns

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