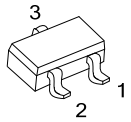
±0.1A, 50V N-CHANNEL MOSFET FOR HIGH-SPEED SWITCHING



SOT-23-3
(JEDEC TO-236)

■ DESCRIPTION

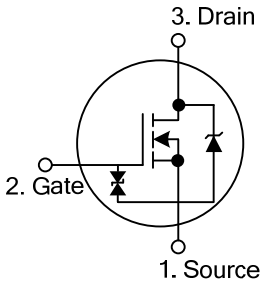
The UTC **UK2158** is an N-channel vertical type MOSFET, it uses UTC's advanced technology to provide customers with high switching speed and low gate cut-off voltage.

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

■ FEATURES

* $R_{DS(ON)}$<50Ω @ V_{GS}=1.5V, I_D=1.0mA
  $R_{DS(ON)}$<20Ω @ V_{GS}=2.5V, I_D=10mA
  $R_{DS(ON)}$<15Ω @ 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°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≤10ms, Duty Cycle≤50%)	$I_{D(PULSE)}$	±0.2	A
Power Dissipation		P_D	200	mW
Channel Temperature		T_{CH}	150	°C
Storage Temperature Range		T_{STG}	-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_A=25°C)

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