



UK2962

Power MOSFET

SILICON N-CHANNEL MOS TYPE FIELD EFFECT TRANSISTOR

DESCRIPTION

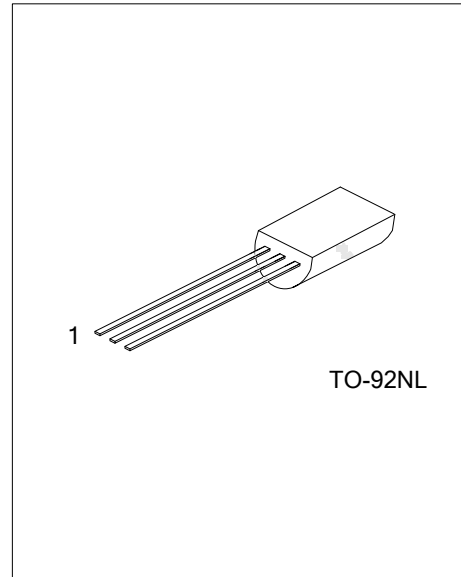
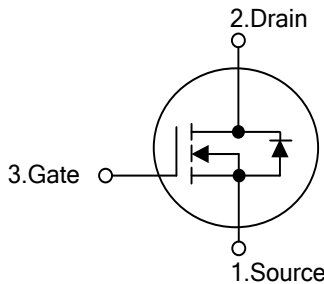
The UTC **UK2962** is a silicon N-Channel MOS type field effect transistor, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and low leakage current, etc.

The UTC **UK2962** is suitable for chopper regulator, DC-DC converter and motor drive applications.

FEATURES

- * Low $R_{DS(ON)}$
- * Low leakage current
- * High forward transfer admittance

SYMBOL



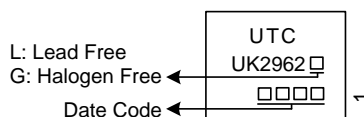
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UK2962L-T9N-B	UK2962G-T9N-B	TO-92NL	S	D	G	Tape Box
UK2962L-T9N-K	UK2962G-T9N-K	TO-92NL	S	D	G	Bulk

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

<p>UK2962G-T9N-B</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) B: Tape Box, K: Bulk</p> <p>(2) T9N: TO-92NL</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	100	V
Drain-Gate Voltage ($R_{GS}=20\text{k}\Omega$)	V_{DGR}	100	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current (Note 1)	DC	I_D	1.0
	Pulse	I_{DP}	3.0
Avalanche Current	I_{AR}	1.0	A
Repetitive Avalanche Energy (Note 3)	E_{AR}	0.09	mJ
Single Pulse Avalanche Energy (Note 2)	E_{AS}	137	mJ
Drain Power Dissipation	P_D	0.9	W
Channel Temperature	T_{CH}	+150	$^\circ\text{C}$
Operating Temperature	T_{OPR}	-40 ~ +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.

■ **THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	138	$^\circ\text{C/W}$

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

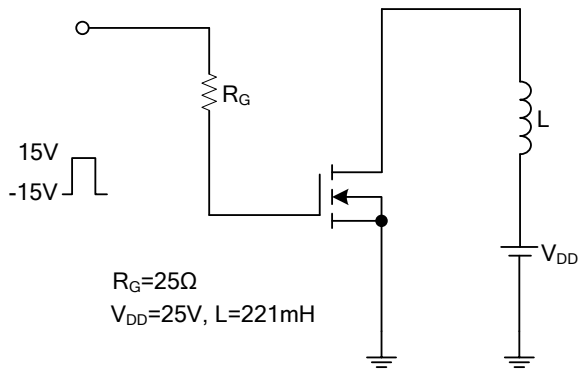
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =10mA, V _{GS} =0V	100			V	
Drain Cut-Off Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			100	μA	
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA	
ON CHARACTERISTICS							
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =10V, I _D =1.0mA	1.3		2.0	V	
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.0V, I _D =0.5A		0.65	0.95	Ω	
		V _{GS} =10V, I _D =0.5A		0.5	0.7	Ω	
Forward Transfer Admittance	Y _{FS}	V _{DS} =10V, I _D =0.5A	0.6	1.2		S	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		140		pF	
Reverse Transfer Capacitance	C _{RSS}			20		pF	
Output Capacitance	C _{OSS}			45		pF	
SWITCHING PARAMETERS							
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _G	V _{GS} =10V, V _{DD} ≈80V, I _D =1.0A		6.3		nC	
Gate to Source Charge	Q _{GS}			4.3		nC	
Gate-Drain ("Miller") Charge	Q _{GD}			2.0		nC	
Turn-ON Time	t _{ON}			13		ns	
Rise Time	t _R				8		ns
Turn-OFF Time	t _{OFF}				175		ns
Fall-Time	t _F				45		ns
			Duty ≤ 1%, t _W = 10μs				
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Continuous Drain Reverse Current (Note 1)	I _{DR}				1.0	A	
Pulse Drain Reverse Current (Note 1)	I _{DRP}				3.0	A	
Diode Forward Voltage	V _{DSF}	I _{DR} =1.0A, V _{GS} =0V			-1.5	V	
Reverse Recovery Time	t _{rr}	I _{DR} =1.0A, V _{GS} =0V, dI _{DR} /dt=50A/μs		80		ns	
Reverse Recovery Charge	Q _{rr}				140		nC

Notes: 1. Please use devices on condition that the channel temperature is below 150°C

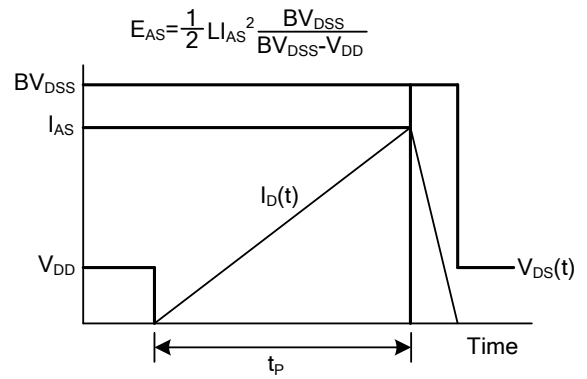
2. V_{DD}=25V, T_{CH}=25°C (initial), L=221mH, R_G=25Ω, I_{AR}=1A

3. Repetitive rating; Pulse width limited by maximum channel temperature

■ TEST CIRCUITS AND WAVEFORMS

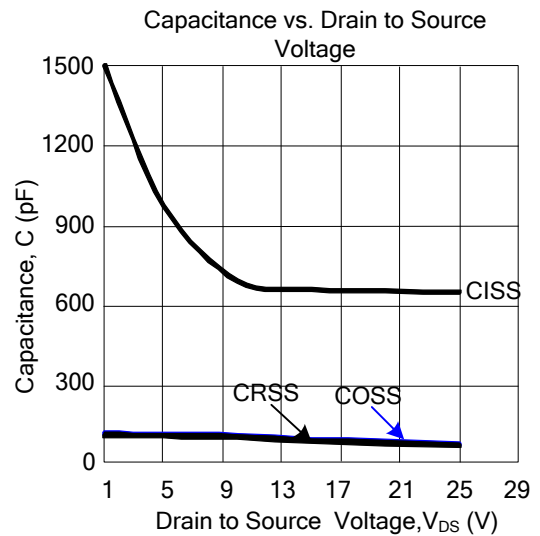
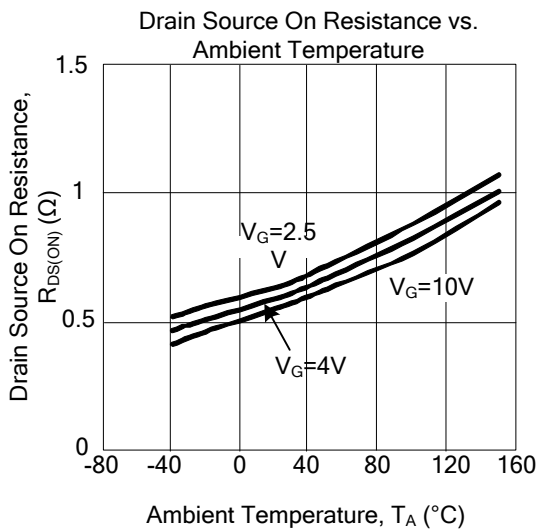
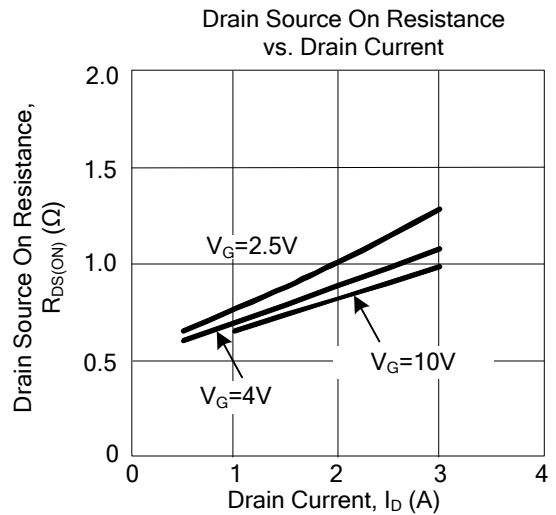
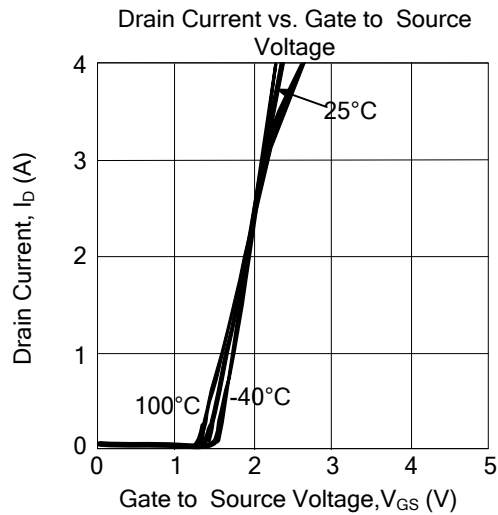
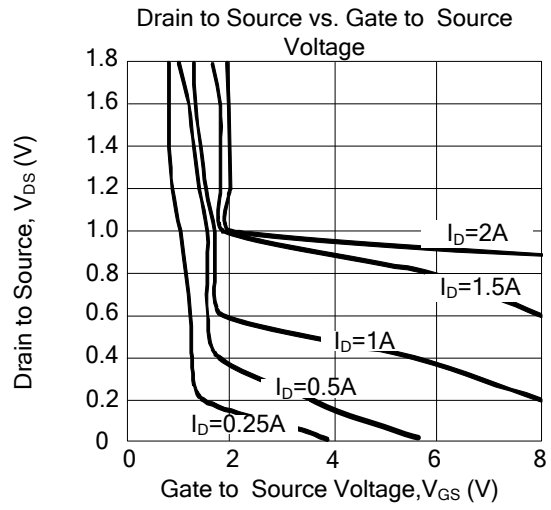
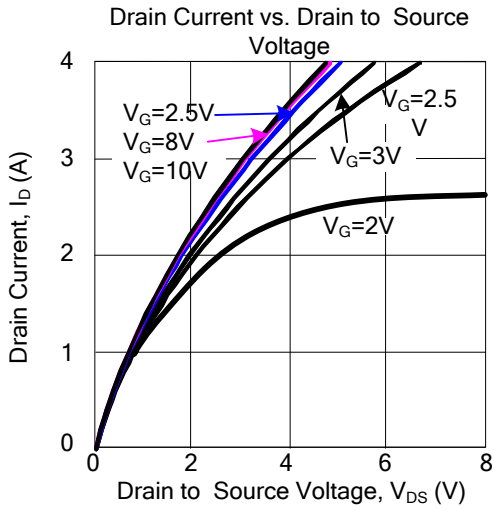


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

TYPICAL CHARACTERISTICS



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