



UK2962

Power MOSFET

**SILICON N-CHANNEL MOS
TYPE FIELD EFFECT
TRANSISTOR**

■ **DESCRIPTION**

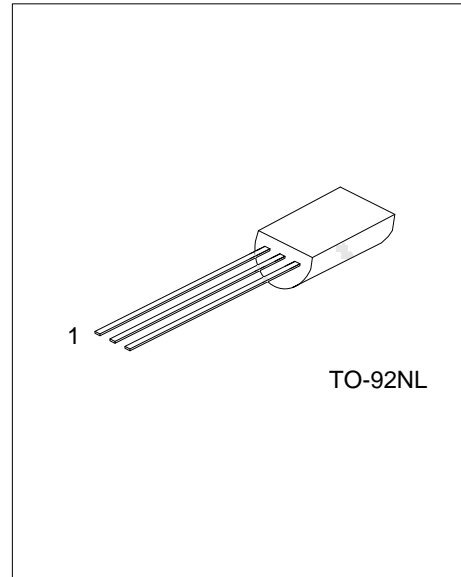
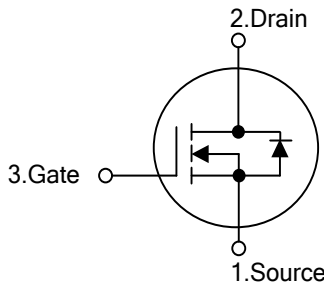
The UTC **UK2962** is a silicon N-Channel MOS type field effect transistor, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and low leakage current, etc.

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**



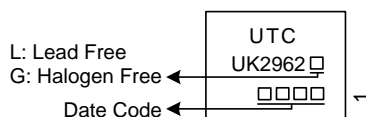
■ **ORDERING INFORMATION**

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°C, unless otherwise specified)

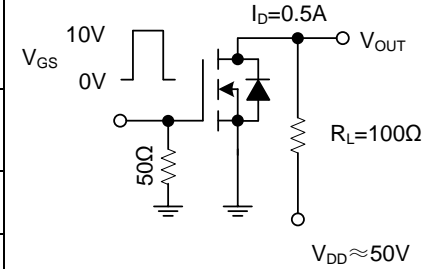
PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current (Note 1)	DC	I _D	1.0
	Pulse	I _{DP}	3.0
Avalanche Current	I _{AR}	1.0	A
Repetitive Avalanche Energy (Note 3)	E _{AR}	0.09	mJ
Single Pulse Avalanche Energy (Note 2)	E _{AS}	100	mJ
Drain Power Dissipation	P _D	0.9	W
Channel Temperature	T _{CH}	+150	°C
Operating Temperature	T _{OPR}	-40 ~ +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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	138	°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			0.95	Ω	
		V _{GS} =10V, I _D =0.5A			0.7	Ω	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		510		pF	
Reverse Transfer Capacitance	C _{RSS}			110		pF	
Output Capacitance	C _{OSS}			8		pF	
SWITCHING PARAMETERS							
Total Gate Charge (Gate-Source Plus Gate-Drain)	Q _G	V _{GS} =10V, V _{DD} ≈80V, I _D =1.0A		11		nC	
Gate to Source Charge	Q _{GS}			2		nC	
Gate-Drain ("Miller") Charge	Q _{GD}			1.1		nC	
Turn-ON Time	t _{ON}			4.5		ns	
Rise Time	t _R				16.5		ns
Turn-OFF Time	t _{OFF}				106		ns
Fall-Time	t _F				28		ns
Duty ≤ 1%, t _w = 10µs							

■ ELECTRICAL CHARACTERISTICS (Cont.)

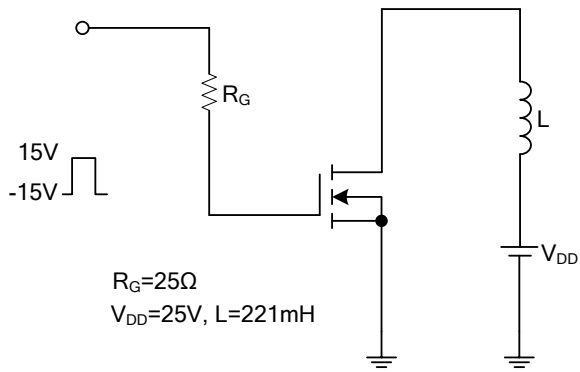
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Drain Reverse Current (Note 1)	I_{DR}				1.0	A
Pulse Drain Reverse Current (Note 1)	I_{DRP}				3.0	A
Diode Forward Voltage	V_{DSF}	$I_{DR}=1.0A, V_{GS}=0V$			-1.5	V
Reverse Recovery Time	t_{rr}	$I_{DR}=1.0A, V_{GS}=0V, dI_{DR}/dt=50A/\mu s$		49		ns
Reverse Recovery Charge	Q_{rr}			90		nC

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

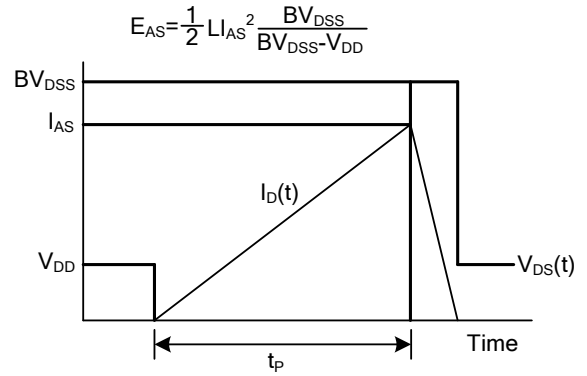
2. $V_{DD}=25V, T_{CH}=25^{\circ}C$ (initial), $L=100mH, R_G=25\Omega, I_{AR}=1.4A$.

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

■ TEST CIRCUITS AND WAVEFORMS

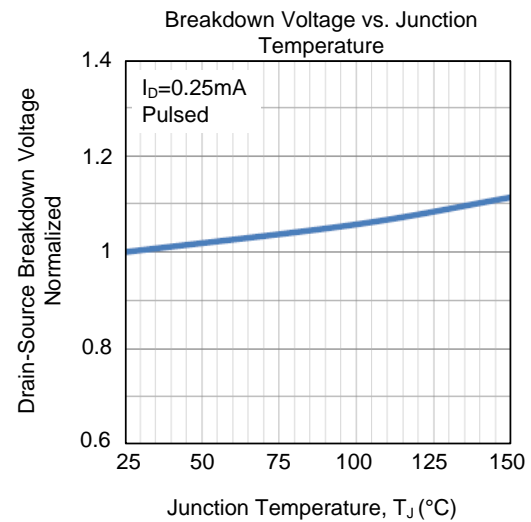
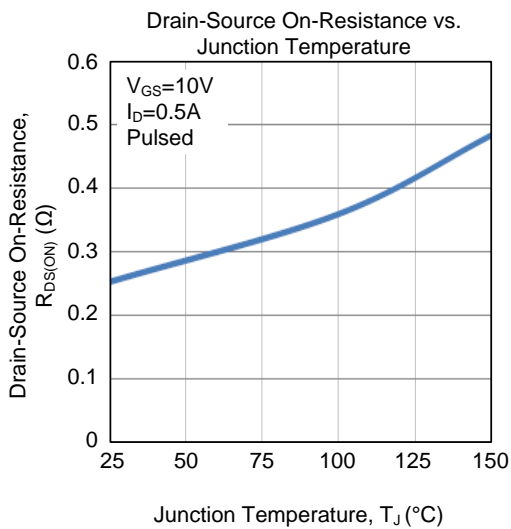
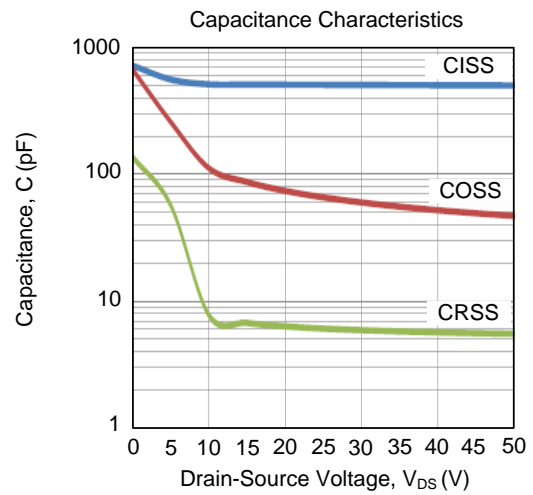
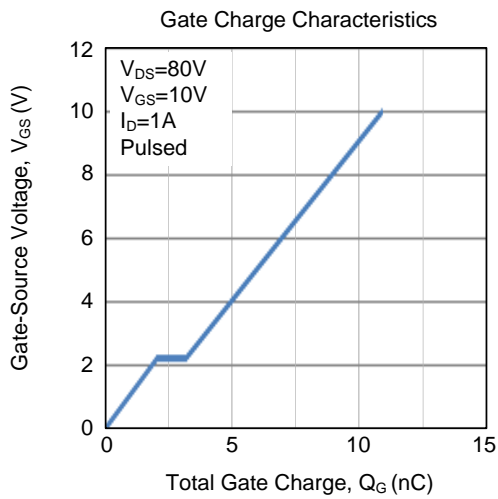
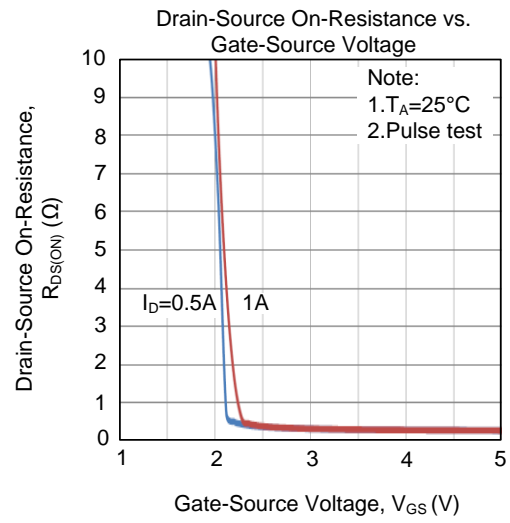
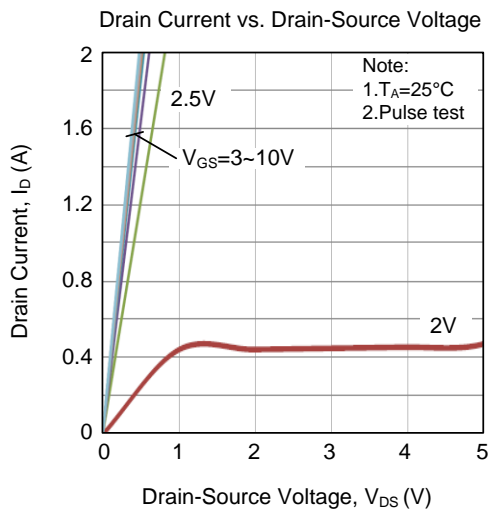


Unclamped Inductive Switching Test Circuit

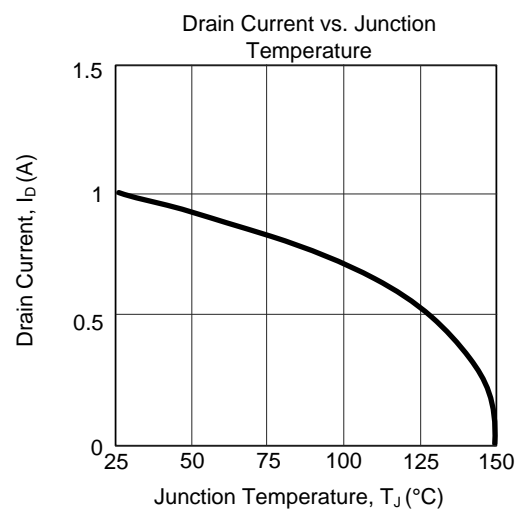
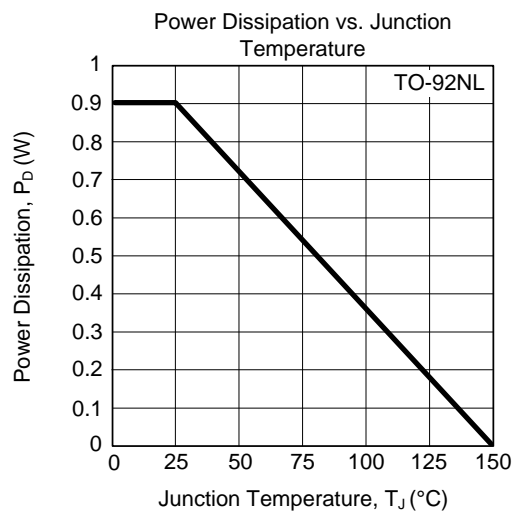
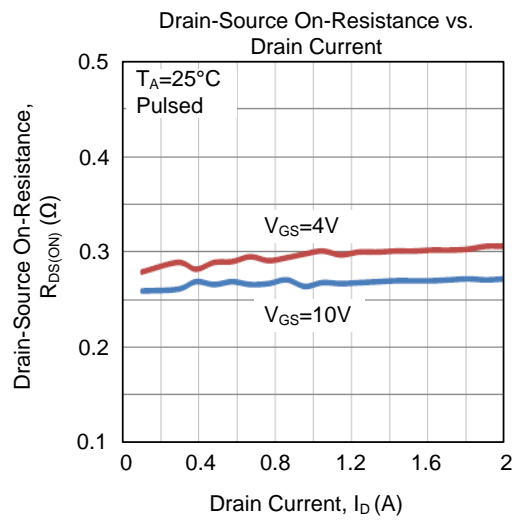
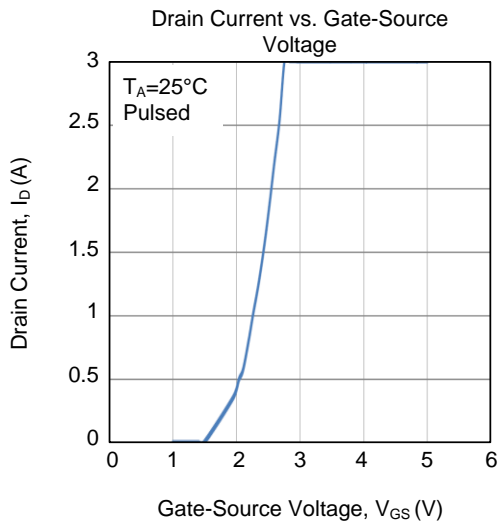
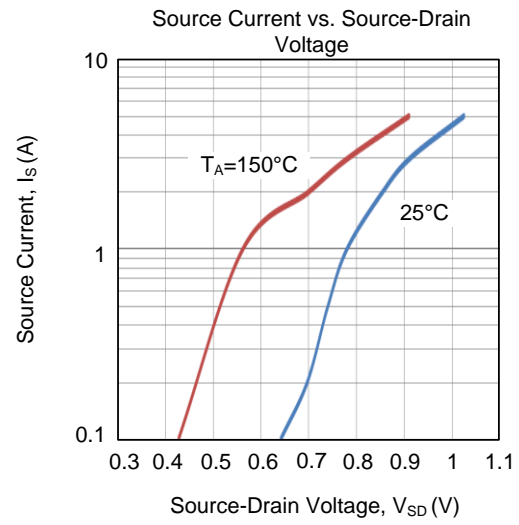
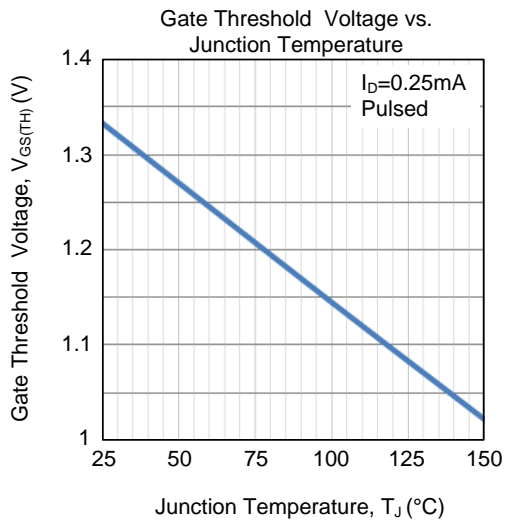


Unclamped Inductive Switching Waveforms

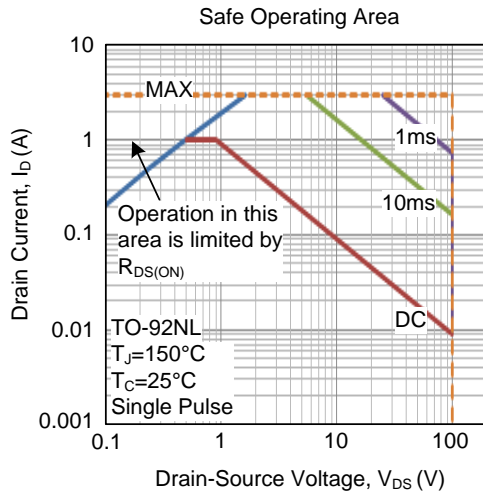
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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