



UT4822

Power MOSFET

DUAL N-CHANNEL ENHANCEMENT MODE

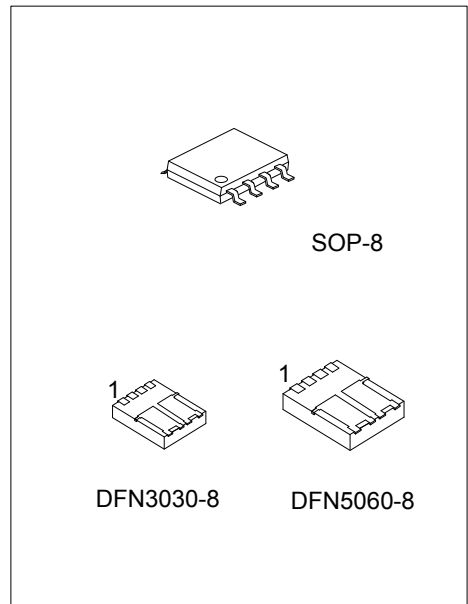
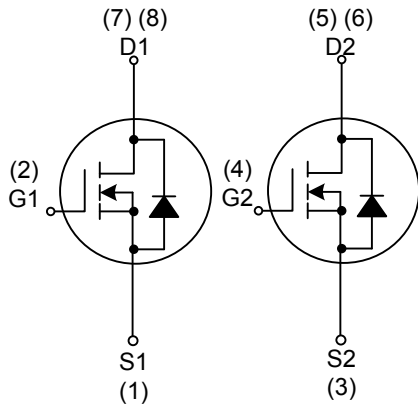
■ DESCRIPTION

The **UT4822** can provide excellent $R_{DS(ON)}$ and low gate charge by using advanced trench technology. The **UT4822** is suitable for using as a load switch or in PWM applications.

■ FEATURES

- * 30V/8.5A
- * Low $R_{DS(ON)}$
- * Reliable and Rugged

■ SYMBOL



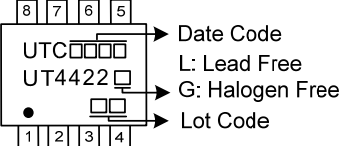
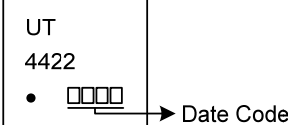
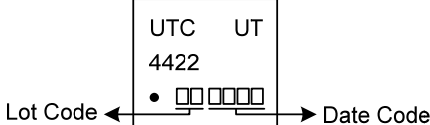
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT4822L-S08-R	UT4822G-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel
UT4822L-K08-3030-R	UT4822G-K08-3030-R	DFN3030-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel
UT4822L-K08-5060-R	UT4822G-K08-5060-R	DFN5060-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

<p>UT4822G-S08-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8, K08-5060: DFN5060-8, K08-3030: DFN3030-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

PACKAGE	MARKING
SOP-8	 <p> UTC□□□□ → Date Code L: Lead Free UT4422 □ → G: Halogen Free • □□ → Lot Code </p>
DFN3030-8	 <p> UT 4422 • □□□ → Date Code </p>
DFN5060-8	 <p> UTC UT 4422 • □□ □□□ → Date Code Lot Code ← □□ </p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current		I_D	8.5	A
Pulsed Drain Current		I_{DM}	40	A
Power Dissipation ($T_C=25^\circ\text{C}$)	SOP-8	P_D	1.2	W
	DFN3030-8		20	W
	DFN5060-8		22	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Notes: 1. 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.

2. Repetitive Rating : Pulse width limited by maximum junction temperature.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOP-8	θ_{JA}	125	$^\circ\text{C/W}$
	DFN3030-8		75	$^\circ\text{C/W}$
	DFN5060-8		65	$^\circ\text{C/W}$
Case to Ambient	SOP-8	θ_{JC}	104	$^\circ\text{C/W}$
	DFN3030-8		6.25	$^\circ\text{C/W}$
	DFN5060-8		5.6	$^\circ\text{C/W}$

Note: Device mounted on FR-4 substrate P_C board, 2oz copper, with 1inch square copper plate.

■ 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}	V _{GS} =0V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =8.5A		16	19	mΩ
		V _{GS} =4.5V, I _D =6.0A		21	26	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =15V, f=1.0MHz		560		pF
Output Capacitance	C _{OSS}			150		pF
Reverse Transfer Capacitance	C _{RSS}			140		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q _G	V _{DS} =24V, V _{GS} =10V, I _D =8.5A (Note 1, 2)		23		nC
Gate-Source Charge	Q _{GS}			2.5		nC
Gate-Drain Charge	Q _{GD}			6		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, V _{GS} =10V, I _D =8.5A R _G =3Ω (Note 1, 2)		6		ns
Turn-ON Rise Time	t _R			16		ns
Turn-OFF Delay Time	t _{D(OFF)}			18		ns
Turn-OFF Fall Time	t _F			24		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				8.5	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				40	A
Drain-Source Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.76	1.0	V
Reverse Recovery Time	t _{rr}	I _F =8.5A, dI _F /dt=100A/μs		480		ns
Reverse Recovery Charge	Q _{rr}			7		μC

Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

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