



## UT4232

Preliminary

Power MOSFET

### N-CHANNEL ENHANCEMENT MODE POWER MOSFET

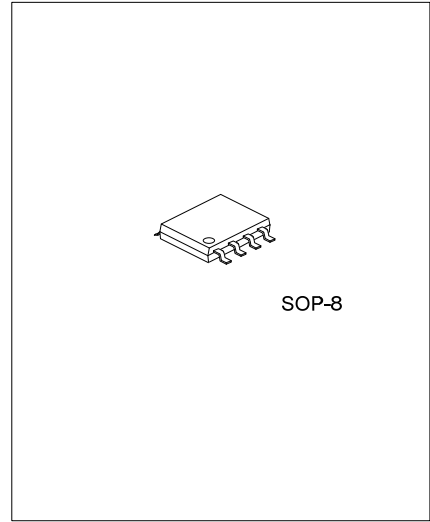
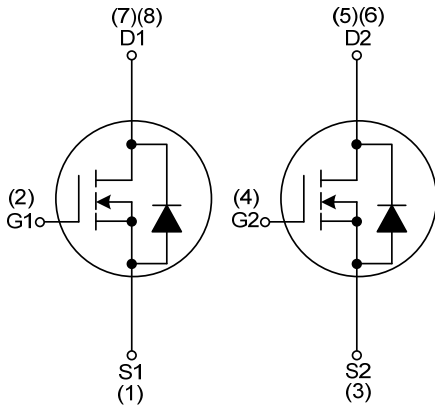
#### DESCRIPTION

The **UT4232** uses UTC advanced technology to provide excellent  $R_{DS(ON)}$ , low gate charge and to be operated with low gate voltages. This device is suitable for applications, such as high-side DC/DC conversion, notebook and server.

#### FEATURES

- \*  $V_{DS(V)}=30V$
- \*  $I_D=7A$  ( $V_{GS} = 10V$ )
- \*  $R_{DS(ON)} < 22m\Omega$  @  $V_{GS}=10 V, I_D=7 A$
- \*  $R_{DS(ON)} < 32m\Omega$  @  $V_{GS}=4.5 V, I_D=5 A$

#### SYMBOL



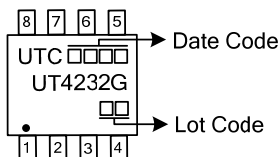
#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT4232G-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

<p>UT4232G-S08-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S08: SOP-8</li> <li>(3) G: Halogen Free and Lead Free</li> </ul>
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#### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	±20	V
Continuous Drain Current (Ta=25°C)(Note 2)	$I_D$	7.8	A
Pulsed Drain Current (Note 3)	$I_{DM}$	30	A
Power Dissipation (Ta=25°C)	$P_D$	2	W
Derate above Ta>25°C		0.016	W/°C
Junction Temperature	$T_J$	+150	°C
Junction and Storage Temperature Range	$T_{STG}$	-55 ~ +150	°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. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board, t≤10sec; 135°C/W when mounted on min.

3. Pulse width limited by  $T_{J(MAX)}$

### ■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	$\theta_{JA}$		62.5		°C/W

Note: Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board, t≤10sec; 135°C/W when mounted on min

### ■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0\text{ V}, I_D=250\ \mu\text{A}$	30			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, $I_D=1\text{mA}$		0.02		V/°C
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=30\text{ V}, V_{GS}=0\text{ V}$			1	μA
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20\text{ V}, V_{DS}=0\text{ V}$			±100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\ \mu\text{A}$	1		3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{ V}, I_D=7\text{ A}$			22	mΩ
		$V_{GS}=4.5\text{ V}, I_D=5\text{ A}$			32	mΩ
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS}=25\text{V}, V_{GS}=0\text{ V}, f=1\text{MHz}$		720	1150	pF
Output Capacitance	$C_{OSS}$			230		pF
Reverse Transfer Capacitance	$C_{RSS}$			200		pF
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, R_D=15\Omega, R_G=3.3\Omega, I_D=1\text{ A}$		10		ns
Turn-ON Rise Time	$t_R$			7		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			22		ns
Turn-OFF Fall-Time	$t_F$			8		ns
Total Gate Charge	$Q_G$	$V_{GS}=4.5\text{ V}, V_{DS}=24\text{ V}, I_D=7\text{ A}$		13	21	nC
Gate Source Charge	$Q_{GS}$			3		nC
Gate Drain Charge	$Q_{GD}$			9		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=1.7\text{ A}, V_{GS}=0\text{ V}$			1.2	V
Reverse Recovery Time	$t_{RR}$	$I_S=7\text{ A}, V_{GS}=0\text{ V}, di/dt=100\text{A}/\mu\text{s}$		16		ns
Reverse Recovery Charge	$Q_{RR}$			8		nC

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