



## UT4392

Power MOSFET

### 30V N-CHANNEL POWER MOSFET

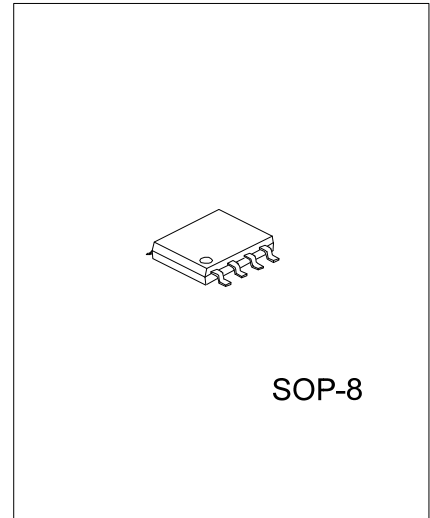
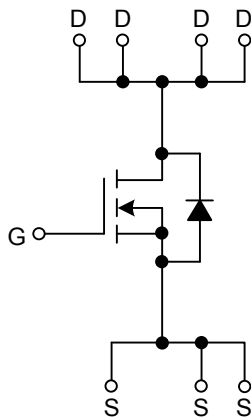
#### DESCRIPTION

The **UT4392** uses UTC advanced technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with low gate voltages. This device is suitable for being used in such applications: high-Side DC/DC Conversion, notebook and sever.

#### FEATURES

- \*  $V_{DS}(V)=30V$
- \*  $I_D=12.5 A (V_{GS}=10V)$
- \* High Density Cell Design for Ultra Low On-resistance
- \*  $R_{DS(ON)}<11.5m\Omega @V_{GS}=10V$
- \*  $R_{DS(ON)}<16.5m\Omega @V_{GS}=4.5V$

#### SYMBOL



SOP-8

Lead-free: UT4392L  
Halogen-free: UT4392G

#### ORDERING INFORMATION

Ordering Number			Package	Pin Assignment								Packing
Normal	Lead Free Plating	Halogen Free		1	2	3	4	5	6	7	8	
UT4392-S08-R	UT4392L-S08-R	UT4392G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

UT4392L-S08-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) S08: SOP-8
	(3)Lead Plating	(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	12.5	A
Pulsed Drain Current	$I_{DM}$	50	A
Power Dissipation( $T_a = 25^\circ\text{C}$ )	$P_D$	3.0	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-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	MIN	TYP	MAX	UNIT
Junction to Ambient (PCB mounted)	$\theta_{JA}$			50	$^\circ\text{C/W}$
Junction to Case	$\theta_{JC}$			25	$^\circ\text{C/W}$

Notes: 1. Pulse width limited by the Maximum junction temperature.

2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

■ ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0 V, I <sub>D</sub> =250 μA	30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =24 V, V <sub>GS</sub> =0 V			1.0	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20 V, V <sub>DS</sub> =0 V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250 μA	1	1.8	3	V
On State Drain Current (Note 1)	I <sub>D(ON)</sub>	V <sub>DS</sub> ≥ 5V, V <sub>GS</sub> = 10V	30			A
Static Drain-Source On-Resistance(Note 1)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10 V, I <sub>D</sub> =12.5 A		9	11.5	mΩ
		V <sub>GS</sub> =4.5 V, I <sub>D</sub> =10 A		13	16.5	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =15 V, V <sub>GS</sub> =0 V, f=1.0MHz, (Note 2)		2134		pF
Output Capacitance	C <sub>OSS</sub>			343		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			134		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =10 V, I <sub>D</sub> =12.5A, (Note 2)		26		nC
Gate Source Charge	Q <sub>GS</sub>			6		nC
Gate Drain Charge	Q <sub>GD</sub>			5		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =15V,I <sub>D</sub> =1 A,V <sub>GEN</sub> =10 V R <sub>G</sub> =6 Ω, R <sub>L</sub> =15 Ω, (Note 3)		17		ns
Turn-ON Rise Time	t <sub>R</sub>			3.5		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			40		ns
Turn-OFF Fall-Time	t <sub>F</sub>			6		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =2.7 A, V <sub>GS</sub> =0V		0.85	1.3	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>	(Note 4,5)			2.7	A

Notes: 1. Pulse Test:  $PW \leq 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2\%$

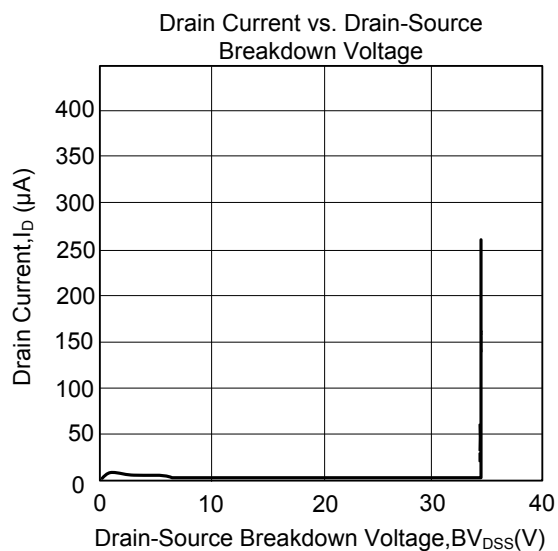
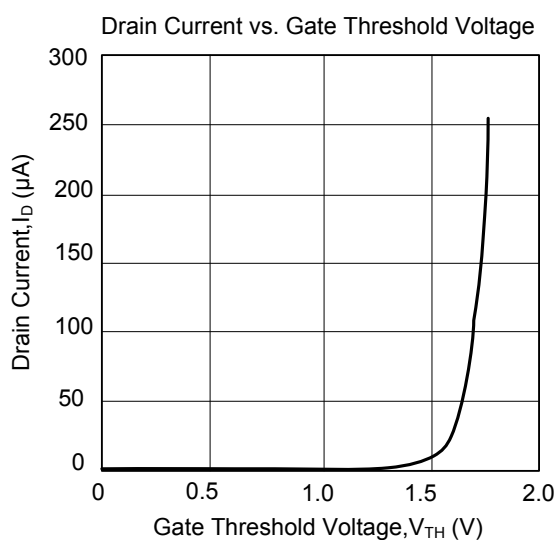
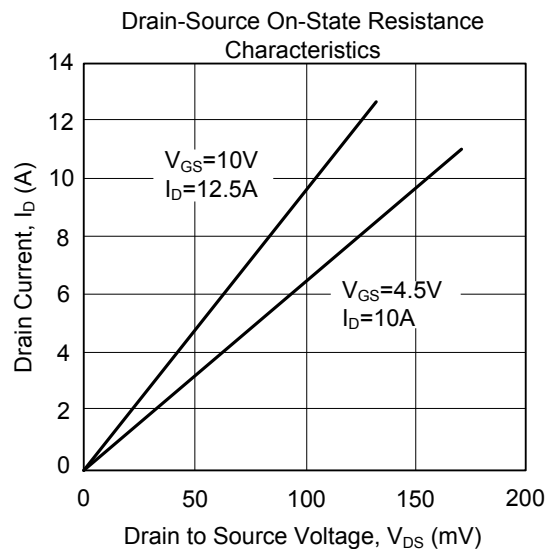
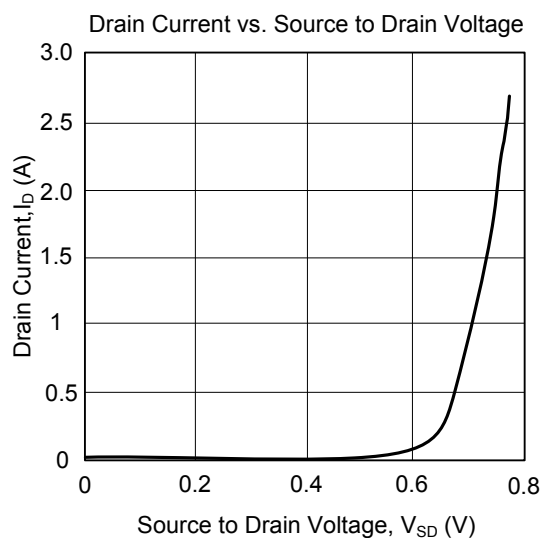
2. For DESIGN AID ONLY, not subject to production testing.

3. Switching time is essentially independent of operating temperature.

4. Pulse width limited by the Maximum junction temperature.

5. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

## ■ TYPICAL CHARACTERISTICS



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