



## 4N30

Power MOSFET

### 4A, 300V N-CHANNEL POWER MOSFET

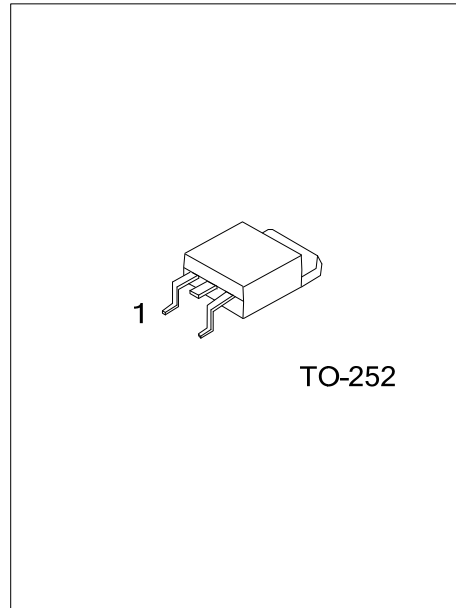
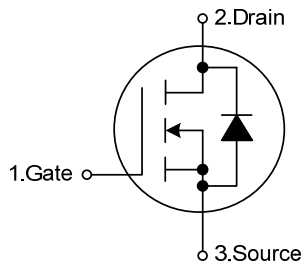
#### DESCRIPTION

The UTC **4N30** is an N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and superior switching performance.

#### FEATURES

- \*  $R_{DS(ON)} < 2\Omega$  @  $V_{GS}=10V, I_D=4A$
- \* High switching speed
- \* Typically 3.2nC low gate charge
- \* 100% avalanche tested

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
4N30L-TN3-R	4N30G-TN3-R	TO-252	G	D	S	Tape Reel
4N30L-TN3-T	4N30G-TN3-T	TO-252	G	D	S	Tube

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

<p>4N30L-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	300	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Continuous Drain Current		$I_D$	4	A
Avalanche Current		$I_{AR}$	4	A
Avalanche Energy	Single Pulsed	$E_{AS}$	52	mJ
	Repetitive	$E_{AR}$	52	mJ
Power Dissipation		$P_D$	1.14	W
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-55~+150	$^{\circ}\text{C}$

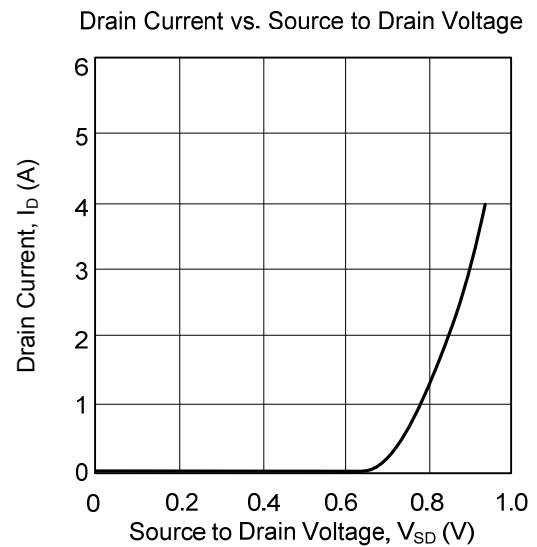
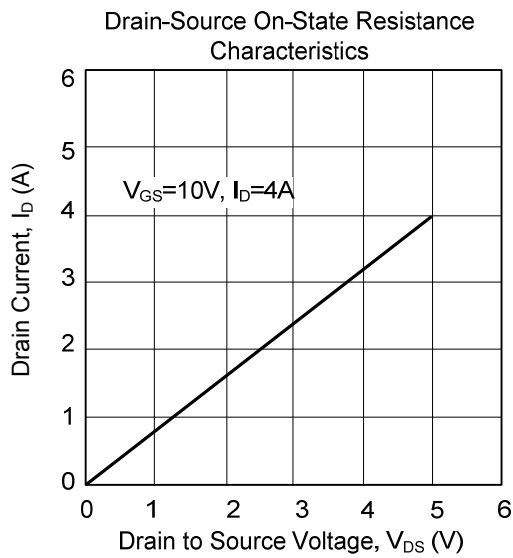
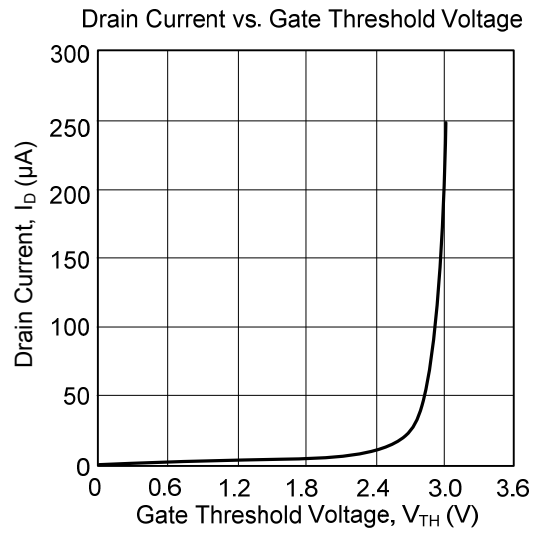
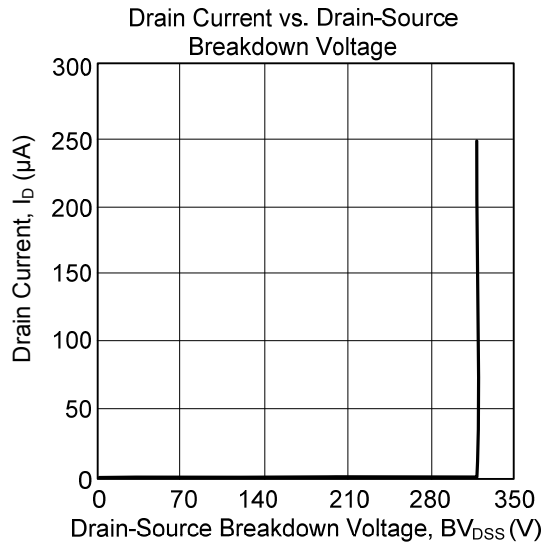
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu\text{A}, V_{DS}=0\text{V}$	300			V
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=300\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			$\pm 100$	nA
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=4\text{A}$			2	$\Omega$
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		$C_{ISS}$	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$			850	pF
Output Capacitance		$C_{OSS}$				250	pF
Reverse Transfer Capacitance		$C_{RSS}$				200	pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge		$Q_G$	$V_{DD}=50\text{V}, I_D=4\text{A}, I_G=100\mu\text{A}, V_{GS}=10\text{V}$		3.2		nC
Gate to Source Charge		$Q_{GS}$			0.64		nC
Gate to Drain Charge		$Q_{GD}$			1.6		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=4\text{A}, R_G=25\Omega, V_{GS}=0\sim 10\text{V}$		6		ns
Rise Time		$t_R$			38		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			11		ns
Fall-Time		$t_F$			13		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Maximum Body-Diode Continuous Current		$I_S$				4	A
Maximum Body-Diode Pulsed Current		$I_{SM}$				16	A
Drain-Source Diode Forward Voltage		$V_{SD}$	$I_S=4\text{A}$	0.1		1.48	V

## TYPICAL CHARACTERISTICS



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