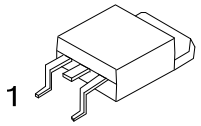
4A, 300V N-CHANNEL POWER MOSFET



TO-252

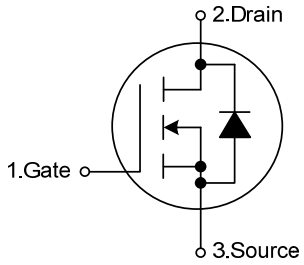
■ DESCRIPTION

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

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

■ SYMBOL



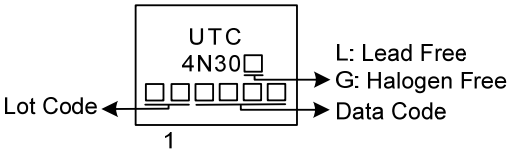
■ ORDERING INFORMATION

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

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

4N30G-TN3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	300	V
Gate-Source Voltage		V_{GSS}	±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	°C
Storage Temperature		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

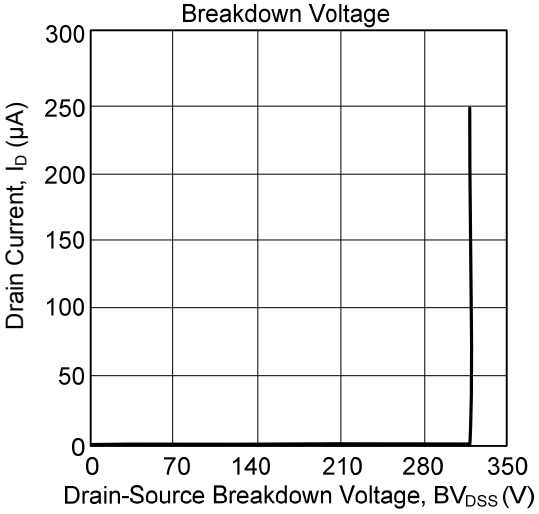
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	°C/W
Junction to Case	θ_{JC}	2.5	°C/W

■ ELECTRICAL CHARACTERISTICS

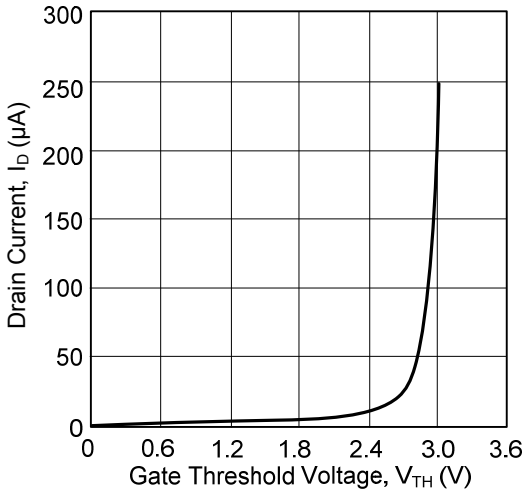
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{DS}=0V	300			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=300V			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			±100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	I_D=250μA	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=4A			2	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1MHz			850	pF
Output Capacitance		C_{OSS}				250	pF
Reverse Transfer Capacitance		C_{RSS}				200	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{DD}=50V, I_D=4A, I_G=100μA, V_{GS}=10V		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}=30V, I_D=4A, R_G=25Ω, V_{GS}=0~10V		6		ns
Rise Time		t_R			38		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			11		ns
Fall-Time		t_F			13		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
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=4A	0.1		1.48	V

■ TYPICAL CHARACTERISTICS

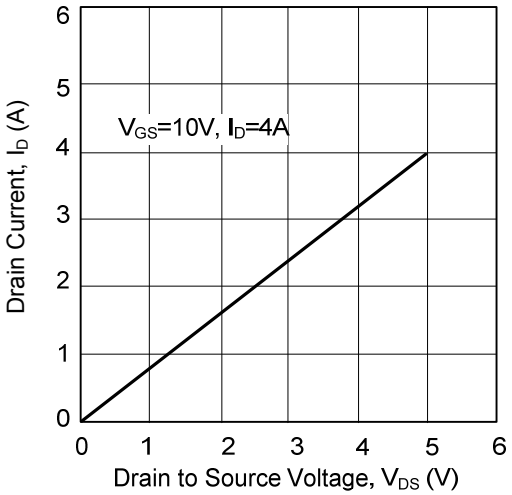
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage