



## UTT30N05

Power MOSFET

### 30A, 50V N-CHANNEL ENHANCEMENT MODE POWER MOSFET TRANSISTOR

#### DESCRIPTION

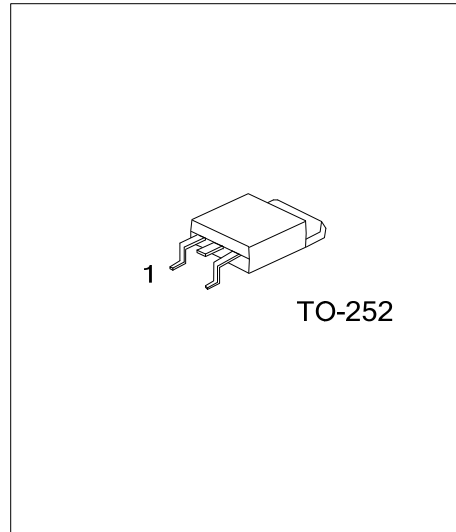
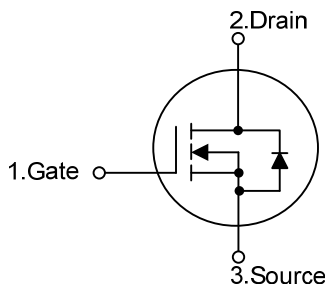
The UTC **UTT30N05** is an N-channel enhancement power MOSFET using UTC's advanced technology to provide the customers with perfect  $R_{DS(ON)}$ , high switching speed, high current capacity and low gate charge.

The UTC **UTT30N05** is suitable for motor control, AC-DC or DC-DC converters and audio amplifiers, etc.

#### FEATURES

- \*  $R_{DS(ON)} < 40\text{ m}\Omega @ V_{GS}=10V, I_D=15A$
- \* High Switching Speed
- \* High Current Capacity
- \* Low Gate Charge (typical 20nC)

#### SYMBOL



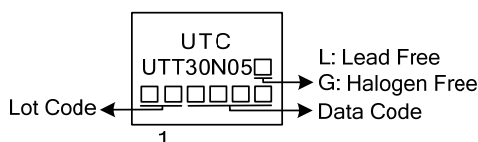
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT30N05L-TN3-R	UTT30N05G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT30N05L-TN3-R (1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) TN3: TO-252 (3) L: Lead Free, G: Halogen Free and Lead Free
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#### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	50	V
Gate-Source Voltage		$V_{GSS}$	±20	V
Drain Current	Continuous	$I_D$	30	A
	Pulsed	$I_{DM}$	120	A
Avalanche Energy	Single Pulsed	$E_{AS}$	300	mJ
	Repetitive	$E_{AR}$	8	mJ
Power Dissipation		$P_D$	44	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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	50	°C/W
Junction to Case	$\theta_{JC}$	2.85	°C/W

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	50			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=50V, V_{GS}=0V$			1	$\mu A$
Gate- Source Leakage Current	$I_{GSS}$	$V_{GS}=+20V, V_{DS}=0V$			+100	nA
		$V_{GS}=-20V, V_{DS}=0V$			-100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=15A$			40	m $\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS}=0V, V_{DS}=25V, f=1.0MHz$		1000		pF
Output Capacitance	$C_{OSS}$			155		pF
Reverse Transfer Capacitance	$C_{RSS}$			95		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	$Q_G$	$V_{GS}=10V, V_{DS}=50V, I_D=30A, I_G=3.33mA$		70	90	nC
Gate to Source Charge	$Q_{GS}$			34		nC
Gate to Drain Charge	$Q_{GD}$			10		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30V, I_D=1A, R_G=4.7\Omega, V_{GS}=10V$		48		ns
Rise Time	$t_R$			70		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			140		ns
Fall-Time	$t_F$			75		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	$I_S$		30			A
Maximum Body-Diode Pulsed Current	$I_{SM}$		120			A
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=30A, V_{GS}=0V$			1.4	V

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