



## 100N02

Preliminary

Power MOSFET

### 100A, 15V N-CHANNEL POWER TRENCH MOSFET

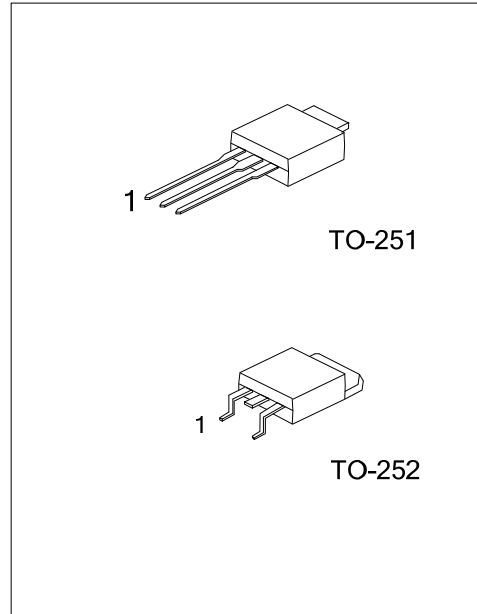
#### DESCRIPTION

The UTC **100N02** is an N-channel Power Trench MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and high switching speed.

The UTC **100N02** is generally applied in synchronous Rectification or DC to DC convertor.

#### FEATURES

- \*  $R_{DS(ON)} < 12m\Omega @ V_{GS}=10V, I_D = 55A$
- \* Low Gate Charge (Typical 46nC)
- \* High Switching Speed
- \* High Power and Current Handling Capability



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
100N20L-TM3-T	100N20G-TM3-T	TO-251	G	D	S	Tube
100N20L-TN3-T	100N20G-TN3-T	TO-252	G	D	S	Tube
100N20L-TN3-R	100N20G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>100N20L-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, TM3: TO-251</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	$V_{DSS}$	15	V	
Gate-Source Voltage	$V_{GSS}$	$\pm 8$	V	
Drain Current	Continuous	$I_D$	100	A
	Pulsed	$I_{DM}$	400	A
Avalanche Energy	Single Pulsed	$E_{AS}$	12	mJ
Power Dissipation	$P_D$	54	W	
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$	
Storage Temperature Range	$T_{STG}$	-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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	62.5	$^{\circ}\text{C/W}$
Junction to Case	$\theta_{JC}$	2.3	$^{\circ}\text{C/W}$

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	15			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=15\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current		Forward			$\pm 100$	nA
		Reverse			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$I_D=250\mu\text{A}$	0.5		1.2	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=55\text{A}$			12	m $\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS}=0\text{V}, V_{DS}=20\text{V}, f=1.0\text{MHz}$		3565		pF
Output Capacitance	$C_{OSS}$			1310		pF
Reverse Transfer Capacitance	$C_{RSS}$			395		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	$Q_G$	$V_{GS}=10\text{V}, V_{DD}=12\text{V}, I_D=0.3\text{A}, I_G=100\mu\text{A}$		46	60	nC
Gate to Source Charge	$Q_{GS}$			6.9		nC
Gate to Drain Charge	$Q_{GD}$			9.8		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=10\text{V}, I_D=0.16\text{A}, R_G=25\Omega, V_{GS}=0\sim 10\text{V}$		9		ns
Rise Time	$t_R$			106		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			53		ns
Fall-Time	$t_F$			41		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=55\text{A}$			1.3	V

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