



## 100N02

Power MOSFET

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

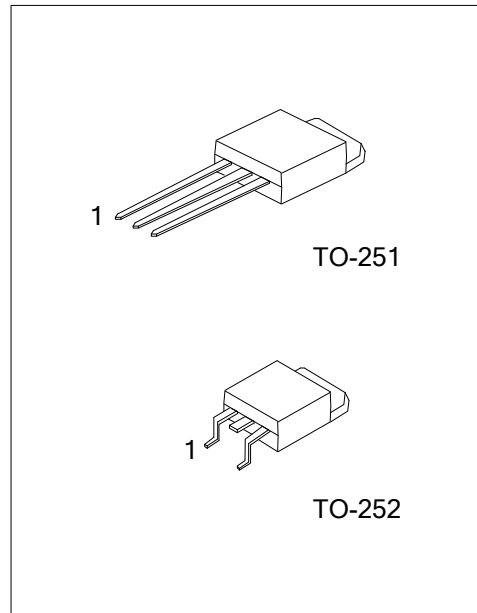
#### DESCRIPTION

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

- \*  $R_{DS(ON)} \leq 7.5m\Omega @ V_{GS}=4.5V, I_D=55A$   
 $R_{DS(ON)} \leq 17m\Omega @ V_{GS}=3.5V, I_D=30A$
- \* Low Gate Charge (Typical 46nC)
- \* High Switching Speed
- \* High Power and Current Handling Capability



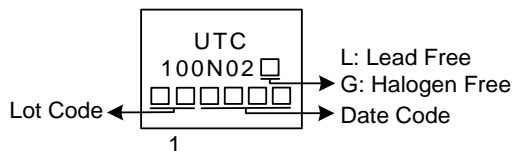
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
100N02L-TM3-T	100N02G-TM3-T	TO-251	G	D	S	Tube
100N02L-TN3-R	100N02G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>100N02G-TM3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252, TM3: TO-251</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



### ■ 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	$^{\circ}C$
Storage Temperature Range		$T_{STG}$	-55 ~ +150	$^{\circ}C$

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

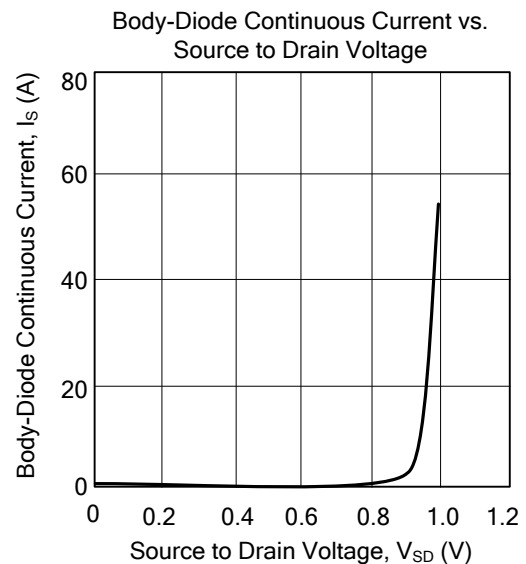
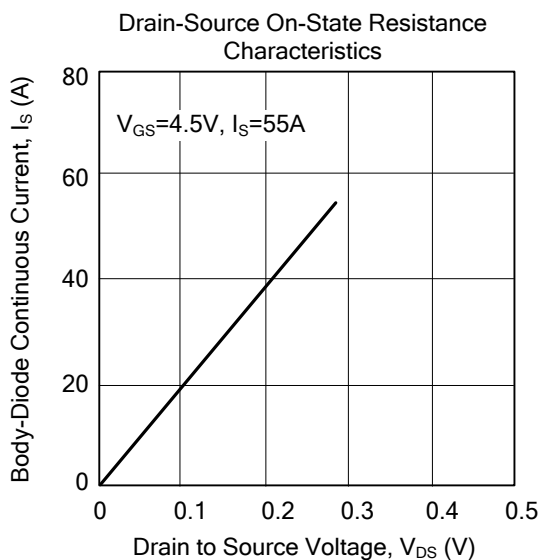
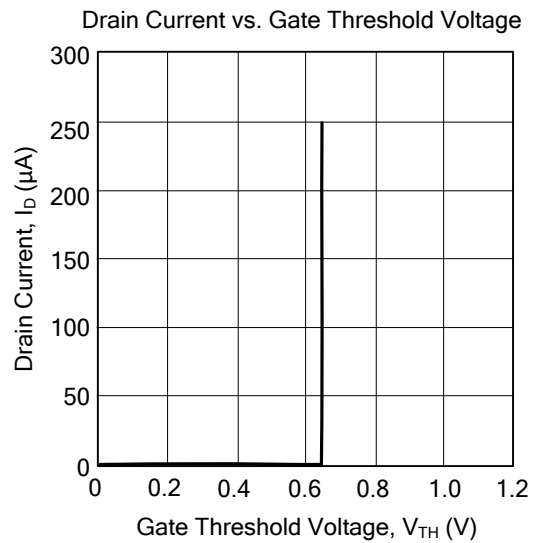
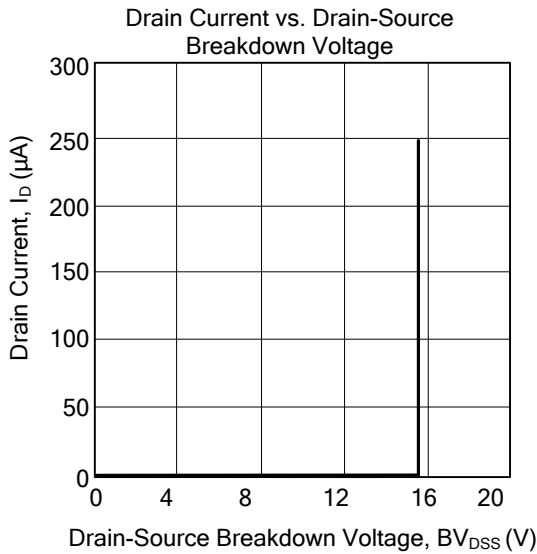
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient		$\theta_{JA}$	62.5	$^{\circ}C/W$
Junction to Case		$\theta_{JC}$	2.3	$^{\circ}C/W$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu A, V_{GS}=0V$	15			V
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=15V$			1	$\mu A$
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+8V$			$\pm 100$	nA
	Reverse		$V_{GS}=-8V$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$I_D=250\mu A$	0.5		1.2	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=55A$			7.5	m $\Omega$
			$V_{GS}=3.5V, I_D=30A$			17	m $\Omega$
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		$C_{ISS}$	$V_{GS}=0V, V_{DS}=20V, f=1.0MHz$		3565		pF
Output Capacitance		$C_{OSS}$			1310		pF
Reverse Transfer Capacitance		$C_{RSS}$			395		pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge		$Q_G$	$V_{GS}=10V, V_{DD}=12V, I_D=0.3A, I_G=100\mu A$		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		$t_{D(ON)}$	$V_{DD}=10V, I_D=0.16A, R_G=25\Omega, V_{GS}=0\sim 10V$		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		$V_{SD}$	$I_S=55A$			1.3	V

## ■ TYPICAL CHARACTERISTICS



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