



UTT6N10Z

Power MOSFET

6A, 100V N-CHANNEL POWER MOSFET

DESCRIPTION

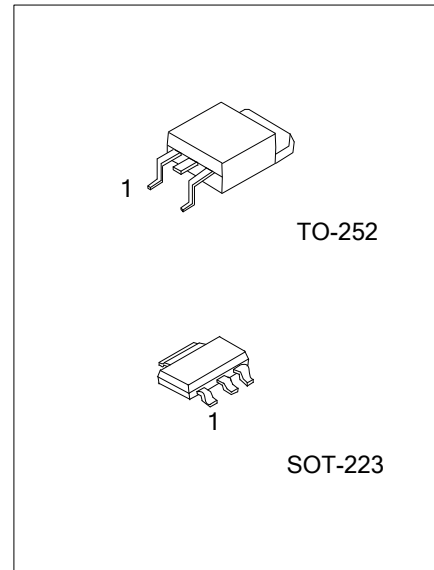
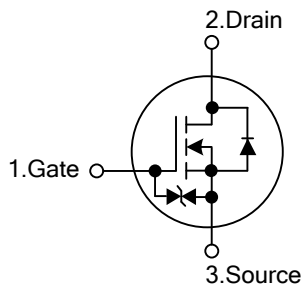
The UTC **UTT6N10Z** is a N-channel enhancement mode Power FET, it uses UTC's advanced technology to provide customers a minimum on-state resistance, high switching speed and ultra low gate charge.

The UTC **UTT6N10Z** is usually used in DC-DC Converters.

FEATURES

- * $R_{DS(on)} < 108\text{ m}\Omega$ @ $V_{GS} = 10\text{V}$, $I_D = 3.0\text{A}$
- * High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT6N10ZL-AA3-R	UTT6N10ZG-AA3-R	SOT-223	G	D	S	Tape Reel
UTT6N10ZL-TN3-R	UTT6N10ZG-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT6N10ZG-AA3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AA3: SOT-223, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-223	TO-252

■ ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	100	V
Gate-Source Voltage			V_{GSS}	± 20	V
Drain Current	Continuous		I_D	6	A
	Pulsed		I_{DM}	24	A
Single Pulsed Avalanche Energy (Note 3)			E_{AS}	12	mJ
Peak Diode Recovery dv/dt (Note 5)			dv/dt	4.2	V/ns
Power Dissipation	$T_C=25^{\circ}\text{C}$	SOT-223	P_D	8	W
	$T_A=25^{\circ}\text{C}$	TO-252		1.25	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 (Note 1)	SOT-223		θ_{JA}	150	$^{\circ}\text{C}/\text{W}$
	TO-252			100	$^{\circ}\text{C}/\text{W}$
Junction to Case	SOT-223		θ_{JC}	12	$^{\circ}\text{C}/\text{W}$
	TO-252			7.5	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	100			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=80\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	$V_{GS}=+20\text{V}$, $V_{DS}=0\text{V}$			+10	μA
	Reverse	$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			-10	μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1.0		3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=3.0\text{A}$		90	108	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=1.0\text{A}$		95	153	$\text{m}\Omega$
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		720	900	pF
Output Capacitance	C_{OSS}			85	65	pF
Reverse Transfer Capacitance	C_{RSS}			33	60	pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10\text{V}$, $V_{DD}=50\text{V}$, $I_D=1.3\text{A}$ $I_G=100\mu\text{A}$		28		nC
Gate to Source Charge	Q_{GS}			3.9		nC
Gate to Drain Charge	Q_{GD}			5.3		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=0.5\text{A}$, $V_{GS}=10\text{V}$, $R_{GEN}=25\Omega$		30		ns
Rise Time	t_R			50		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			280		ns
Fall-Time	t_F			80		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				6	A
Source Current Pulsed	I_{SM}				24	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=6\text{A}$, $V_{GS}=0\text{V}$ (Note 2)		0.8	1.3	V
Reverse Recovery Time	t_{rr}	$I_S=6\text{A}$, $V_{GS}=0\text{V}$,		70		ns
Reverse Recovery Charge	Q_{rr}	$dI_F/dt=100\text{A}/\mu\text{s}$ (Note 1)		115		nC

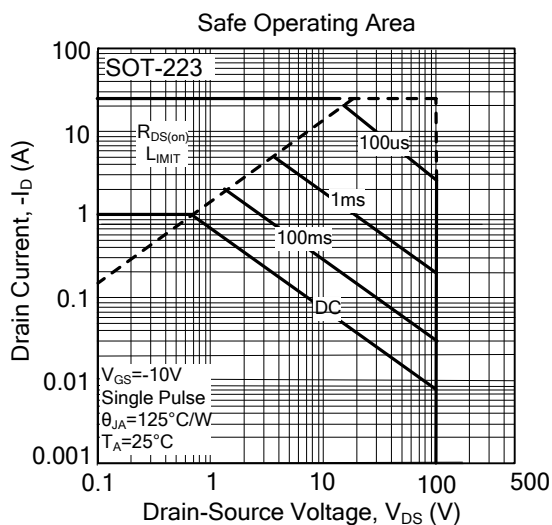
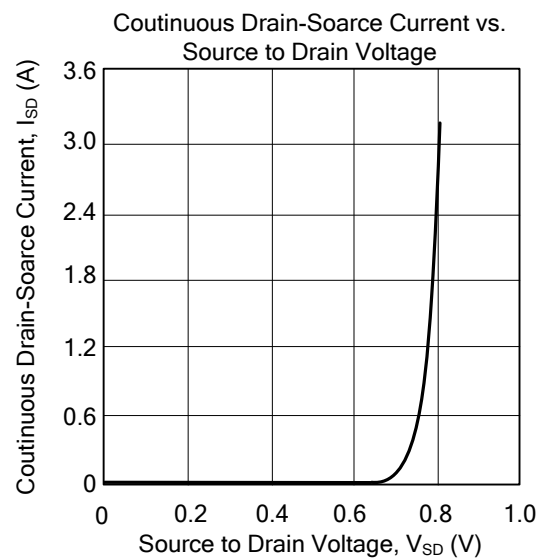
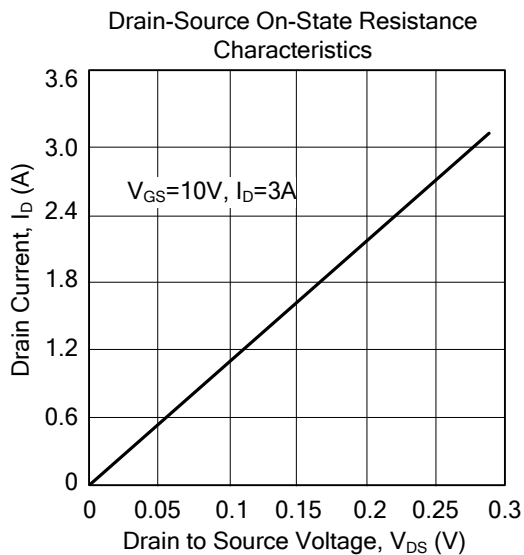
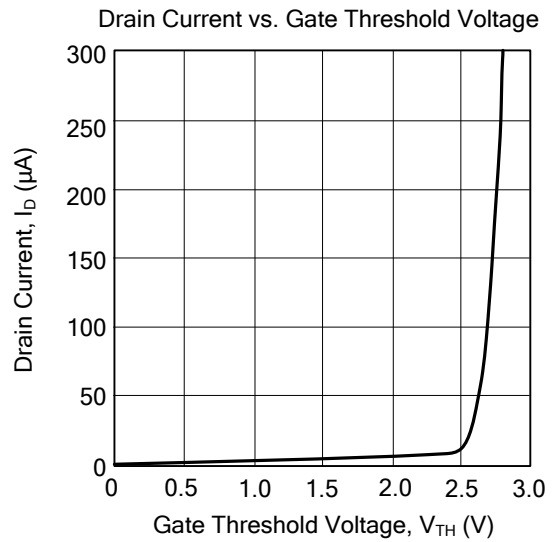
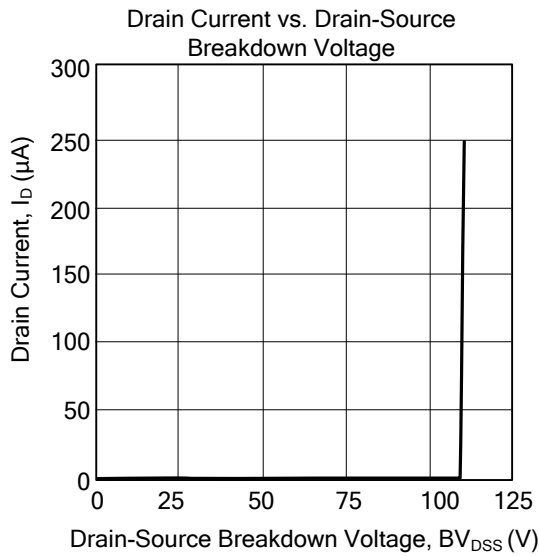
Notes: 1. θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

θ_{JC} is guaranteed by design while θ_{JA} is determined by the user's board design.

2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

3. Starting $T_J = 25^\circ\text{C}$, $L = 11\text{mH}$, $I_{AS} = 6\text{A}$, $V_{DD} = 90\text{V}$, $V_{GS} = 10\text{V}$.

■ TYPICAL CHARACTERISTICS



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