



UTT6N10Z

Power MOSFET

6.0A, 100V N-CHANNEL POWER MOSFET

■ DESCRIPTION

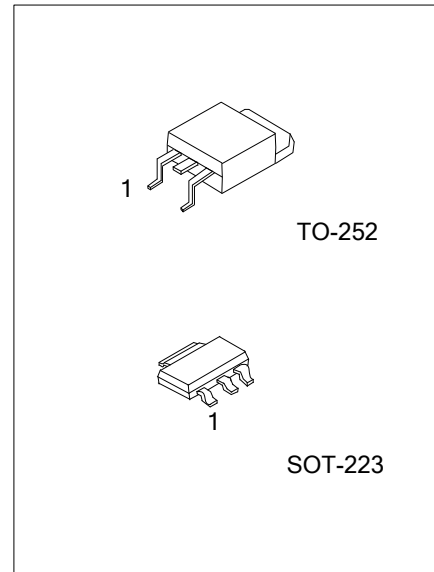
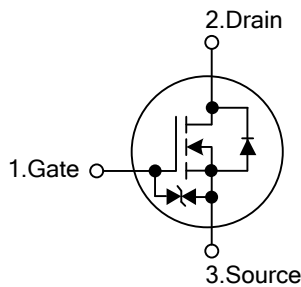
The UTC **UTT6N10Z** is an N-channel enhancement mode Power FET, it uses UTC's advanced technology to provide customers a minimum on-state resistance, high switching speed and ultra low gate charge.

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

■ FEATURES

- * $R_{DS(on)} < 108m\Omega @ V_{GS} = 10V, I_D=3A$
- * High Switching Speed

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
-	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 ($T_A=25^\circ\text{C}$) (Note 1)	SOT-223	P_D	0.8	W
	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	$^\circ\text{C/W}$
	TO-252		100	$^\circ\text{C/W}$
Junction to Case	SOT-223	θ_{JC}	12	$^\circ\text{C/W}$
	TO-252		7.5	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	100			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	V _{GS} =+20V, V _{DS} =0V			+10	μA
	Reverse	V _{GS} =-20V, V _{DS} =0V			-10	μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3A		90	108	mΩ
		V _{GS} =4.5V, I _D =1A		95	153	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		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} =10V, V _{DD} =50V, I _D =1.3A I _G =100μA		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} =30V, I _D =0.5A, V _{GS} =10V, R _{GEN} =25Ω		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 =6A, V _{GS} =0V (Note 2)		0.8	1.3	V
Reverse Recovery Time	t _{rr}	I _S =6A, V _{GS} =0V,		70		ns
Reverse Recovery Charge	Q _{rr}	dI _F /dt=100A/μs (Note 1)		115		nC

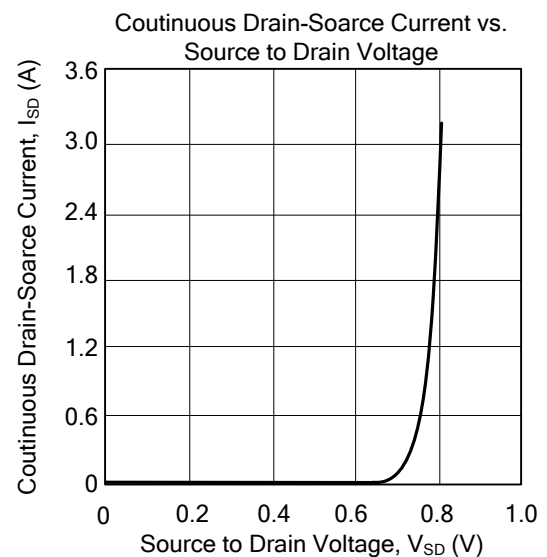
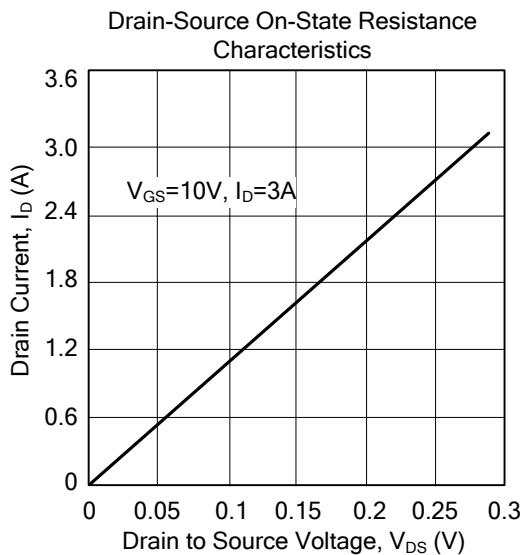
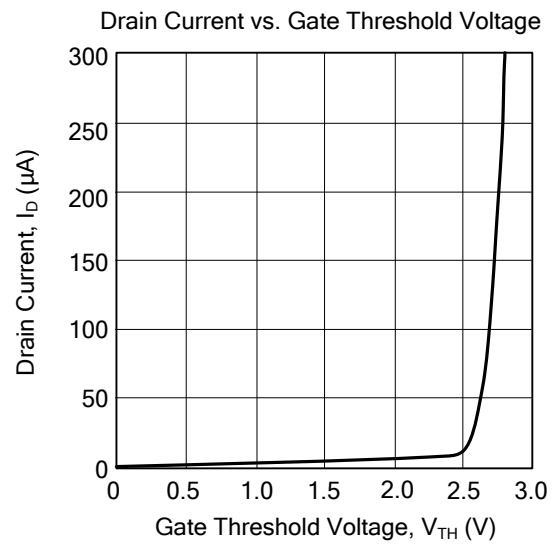
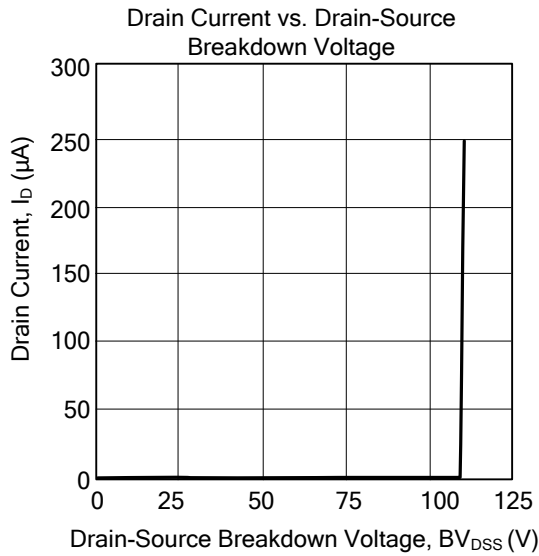
Notes: 1. θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

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

2. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%

3. Starting T_J = 25°C, L = 11mH, I_{AS} = 6A, V_{DD} = 90V, V_{GS}=10V.

TYPICAL CHARACTERISTICS



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