



UTT6N10Z

Power MOSFET

100V, 6A N-CHANNEL POWER MOSFET

DESCRIPTION

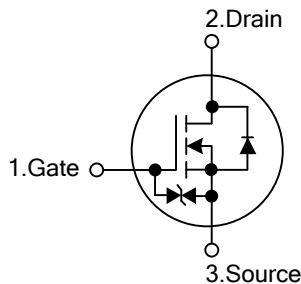
The UTC **UTT6N10Z** is an N-channel enhancement mode Power FET, it uses UTC's advanced technology to provide customers a minimum on-state resistance, high switching speed and ultra low gate charge.

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

FEATURES

- * $R_{DS(on)} = 80m\Omega @ V_{GS} = 10V, I_D = 6A$
- * High Switching Speed
- * Low C_{rss} (Typically 3.1pF)
- * Low Gate Charge (Typically 4.3nC)

SYMBOL

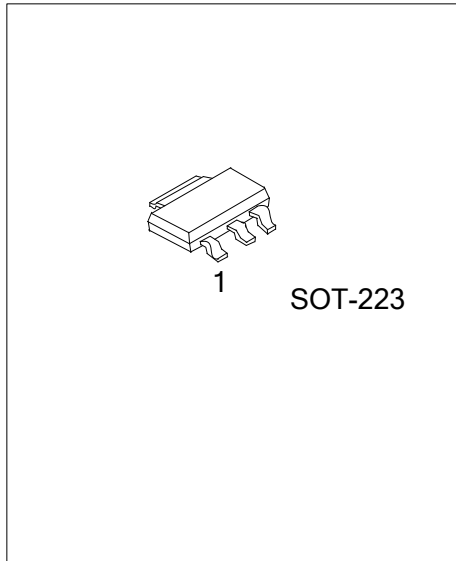


ORDERING INFORMATION

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

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

UTT6N10ZL-AA3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AA3: SOT-223
	(3)Lead Free	(3) L: Lead Free, G: Halogen Free



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

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
Power Dissipation	$T_A=25^\circ\text{C}$ (Note 1)	P_D	2.2	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)	θ_{JA}	55	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	12	$^\circ\text{C/W}$

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

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		I_{GSS}				μA
						-10
		Reverse	$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			μA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1.0		2.2	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=6\text{A}$		80	108	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=3\text{A}$		100	153	$\text{m}\Omega$
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		234	315	pF
Output Capacitance	C_{OSS}			46	65	pF
Reverse Transfer Capacitance	C_{RSS}			3.1	5	pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10\text{V}$, $V_{DD}=25\text{V}$, $I_D=6\text{A}$		4.3	7	nC
Gate to Source Charge	Q_{GS}	$V_{DD}=50\text{V}$, $I_D=6\text{A}$		0.7		nC
Gate to Drain Charge	Q_{GD}	$V_{DD}=50\text{V}$, $I_D=6\text{A}$		0.9		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=50\text{V}$, $I_D=6\text{A}$, $V_{GS}=10\text{V}$, $R_{GEN}=6\Omega$		3.8	10	ns
Rise Time	t_R			1.3	10	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			10	20	ns
Fall-Time	t_F			1.5	10	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
ssDrain-Source Diode Forward Voltage	V_{SD}	$I_S=6\text{A}$, $V_{GS}=0\text{V}$ (Note 2)		0.86	1.3	V
Maximum Body-Diode Continuous Current	I_S				6	A
Source Current Pulsed	I_{SM}				24	A

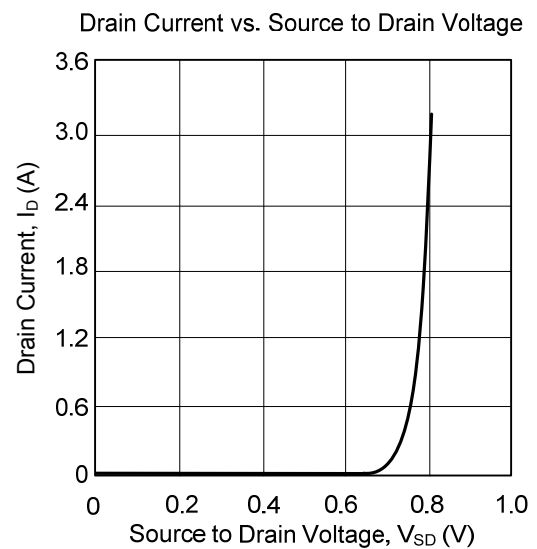
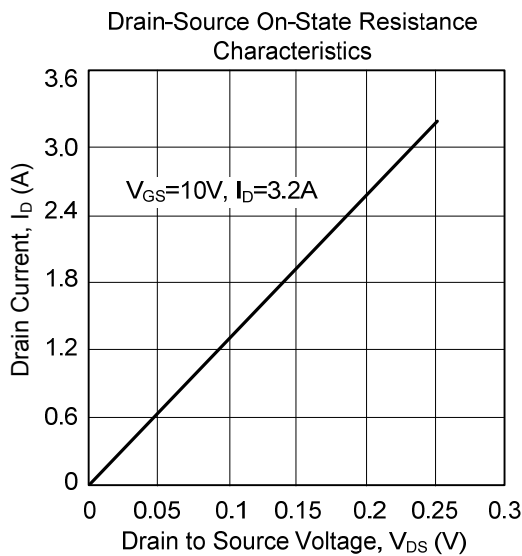
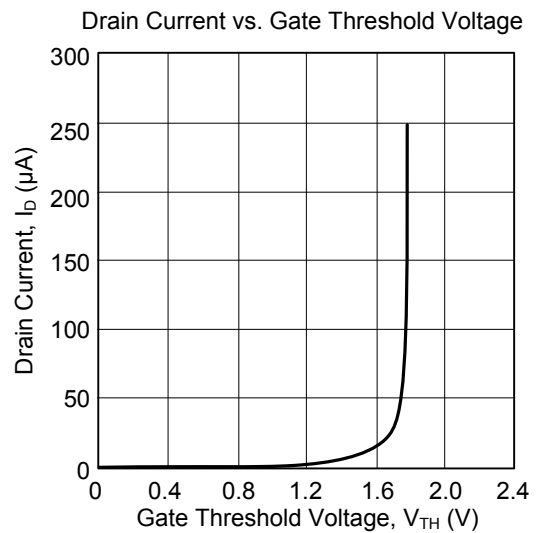
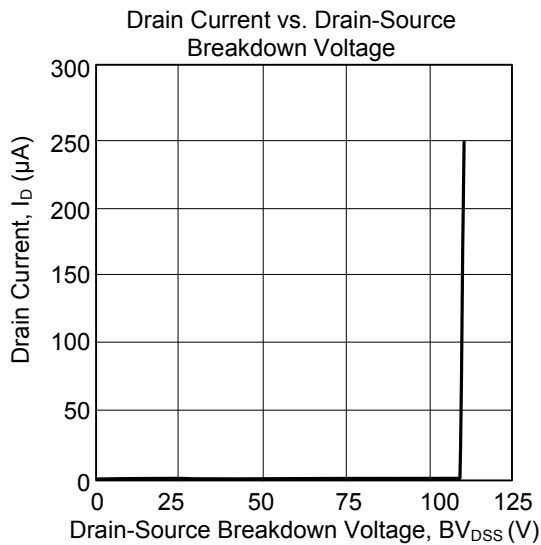
Notes: 1. θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

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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