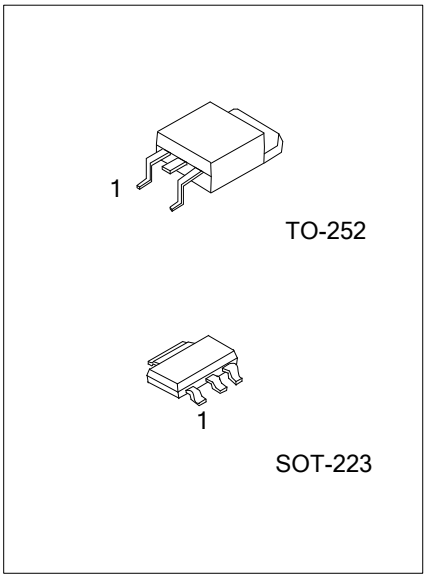
UTT6N10

Power MOSFET

6A, 100V N-CHANNEL POWER MOSFET



■ DESCRIPTION

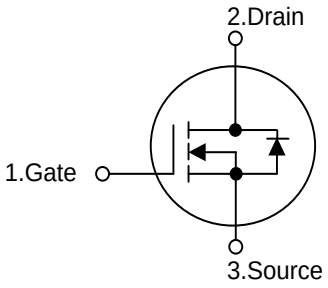
The UTC **UTT6N10** is a N-channel enhancement mode Power FET, it uses UTC's advanced technology to provide customers a minimum on-state resistance, high switching speed and ultra low gate charge.

The UTC **UTT6N10** is usually used in DC-DC Conversion.

■ FEATURES

* $R_{DS(on)}$ ≤ 175 mΩ @ V_{GS}=10V, I_D=3.0A
  $R_{DS(on)}$ ≤ 200 mΩ @ V_{GS}=4.5V, I_D=1.0A
* High Switching Speed

■ SYMBOL



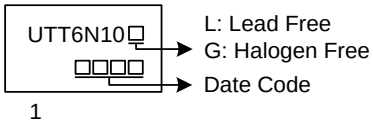
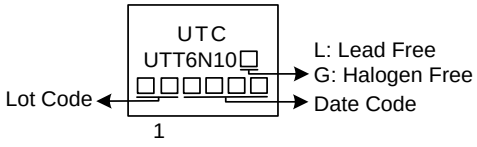
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT6N10L-AA3-R	UTT6N10G-AA3-R	SOT-223	G	D	S	Tape Reel
UTT6N10L-TN3-R	UTT6N10G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT6N10G-AA3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AA3: SOT-223, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-223	TO-252
	

■ ABSOLUTE MAXIMUM RATINGS (T_C=25°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
Power Dissipation	SOT-223	P_D	3	W
	TO-252		16	W
Junction Temperature		T_J	+150	°C
Storage Temperature Range		T_{STG}	-55 ~ +150	°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 (Note 1)	SOT-223	θ_{JA}	150	°C/W
	TO-252		100	°C/W
Junction to Case	SOT-223	θ_{JC}	41.6	°C/W
	TO-252		7.8	°C/W

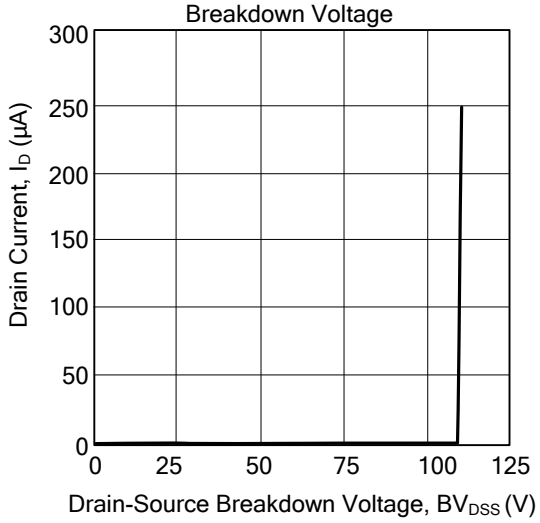
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise noted)

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	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
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=3.0A		145	175	mΩ
			V_{GS}=4.5V, I_D=1.0A		155	200	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		700	900	pF
Output Capacitance		C_{OSS}			42	60	pF
Reverse Transfer Capacitance		C_{RSS}			10	15	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DD}=80V, I_D=6.0A		23		nC
Gate to Source Charge		Q_{GS}			4.5		nC
Gate to Drain Charge		Q_{GD}			5		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=30V, I_D=0.5A, V_{GS}=10V, R_G=25Ω		32		ns
Rise Time		t_R			28		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			220		ns
Fall-Time		t_F			41		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=3.2A, V_{GS}=0V (Note 2)		0.86	1.3	V

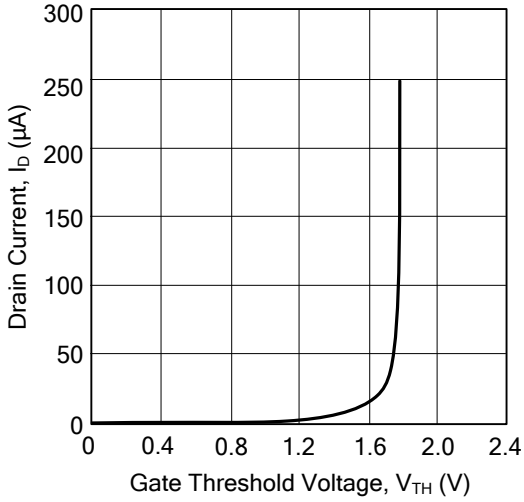
Notes: 1. θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.
2. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%

■ TYPICAL CHARACTERISTICS

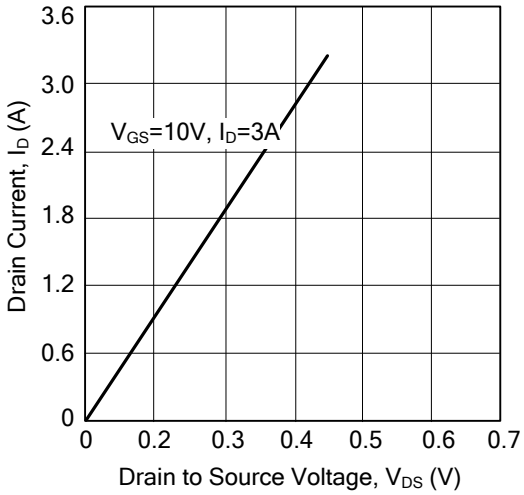
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Coutinuous Drain-Soarce Current vs. Source to Drain Voltage