



UTT2N10

Preliminary

Power MOSFET

100V COMPLEMENTARY ENHANCEMENT MODE MOSFET (N-CHANNEL)

DESCRIPTION

The UTC **UTT2N10** is a complementary enhancement mode MOSFET, it uses UTC advanced technology to provide customers low on resistance, low gate charge and low threshold voltage.

The UTC **UTT2N10** is universally applied in DC-AC Inverters and DC Motor control.

FEATURES

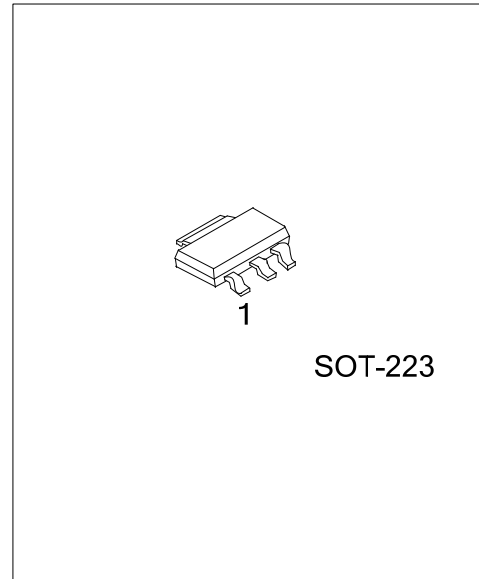
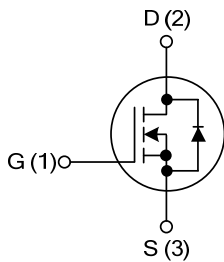
* N-CHANNEL

$$R_{DS(on)} < 0.7\Omega @V_{GS} = 10V$$

$$R_{DS(on)} < 1.0\Omega @V_{GS} = 4.5V$$

* High switching speed

SYMBOL



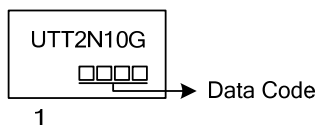
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UTT2N10G-AA3-R	SOT-223	G	D	S	Tape Reel

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

UTT2N10G-AA3-R (1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AA3: SOT-223 (3) G: Halogen Free and Lead Free
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MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT	
Gate-Source Voltage		V_{GS}	± 20	V	
Drain-Source Voltage		V_{DS}	100	V	
Drain Current	Continuous	$V_{GS}=10\text{V}$, $T_A=25^\circ\text{C}$, $t \leq 10 \text{ sec}$	I_D	1	A
	Pulsed	$V_{GS}=10\text{V}$, $T_A=25^\circ\text{C}$ (Note1)	I_{DM}	4.3	A
Power Dissipation		$T_A=25^\circ\text{C}$	P_D	0.87	W
		Derating		6.94	mW/°C
Junction Temperature		T_J	-55~+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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	θ_{JA}	55	°C/W
Junction to Case	θ_{JC}	12	°C/W

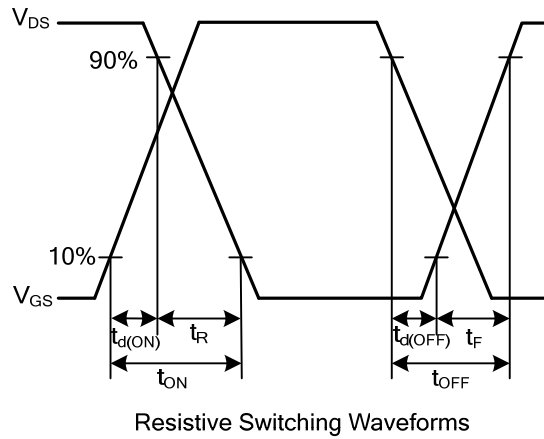
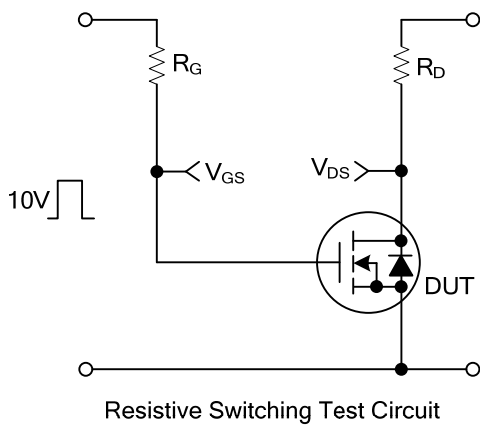
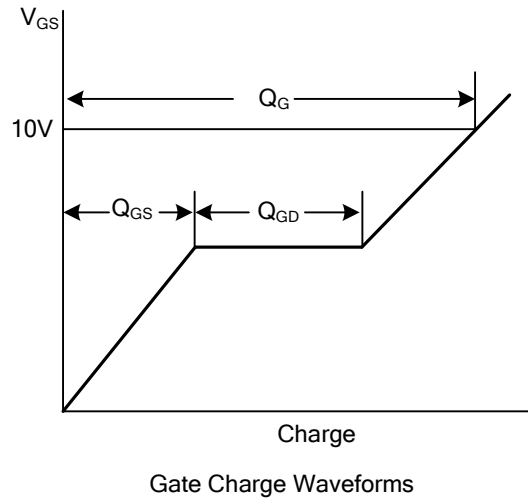
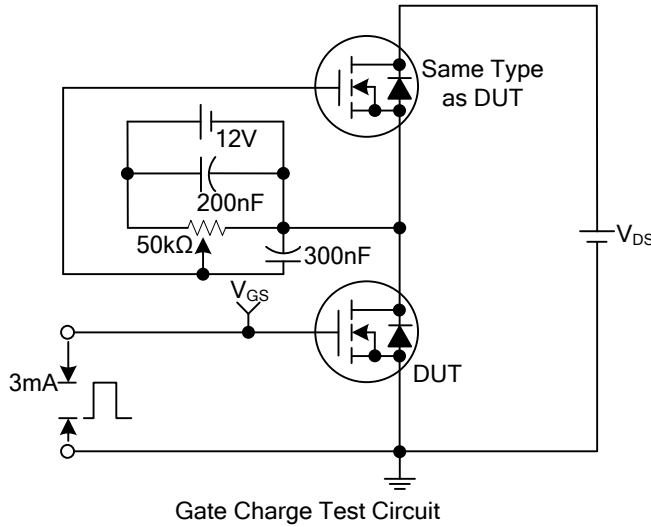
Notes: θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, 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}	$V_{DS}=100\text{V}$, $V_{GS}=0\text{V}$			0.5	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}$, $V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance(Note 1)		$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=1.5\text{A}$			0.7	Ω
			$V_{GS}=4.5\text{V}$, $I_D=1\text{A}$			1.0	Ω
DYNAMIC PARAMETERS							
Input Capacitance (Note 3)		C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		220		pF
Output Capacitance (Note 3)		C_{OSS}			33		pF
Reverse Transfer Capacitance (Note 3)		C_{RSS}			17		pF
SWITCHING PARAMETERS							
Total Gate Charge (Note 3)		Q_G	$V_{GS}=10\text{V}$, $V_{DS}=50\text{V}$, $I_D=1\text{A}$		21		nC
Gate to Source Charge (Note 3)		Q_{GS}			2		nC
Gate to Drain Charge (Note 3)		Q_{GD}			1.5		nC
Turn-ON Delay Time (Note 2, 3)		$t_{D(ON)}$	$V_{DD}=30\text{V}$, $I_D=1\text{A}$, $R_G \approx 6\Omega$, $V_{GS}=10\text{V}$		25.6		ns
Rise Time (Note 2, 3)		t_R			16		ns
Turn-OFF Delay Time (Note 2, 3)		$t_{D(OFF)}$			55		ns
Fall-Time (Note 2, 3)		t_F			13		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S	$T_A=25^\circ\text{C}$ (Note 2)			1	A
Maximum Body-Diode Pulsed Current		I_{SM}	$T_A=25^\circ\text{C}$ (Note 3)			4.3	A
Drain-Source Diode Forward Voltage (Note 1)		V_{SD}	$I_S=1.5\text{A}$, $V_{GS}=0\text{V}$			0.95	V

Notes: 1. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$
 2. Switching characteristics are independent of operating junction temperature
 3. For design aid only, not subject to production testing

■ TEST CIRCUITS AND WAVEFORMS



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