



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

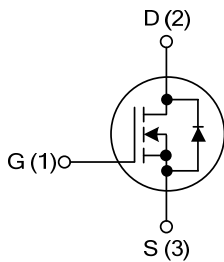
* N-CHANNEL

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

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

* High switching speed

SYMBOL



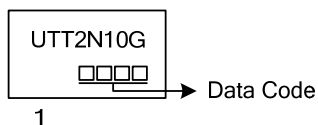
ORDERING INFORMATION

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

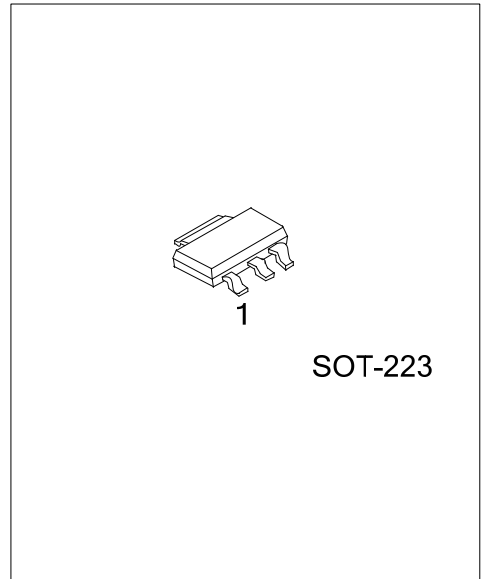
Note: Pin Assignment: G: Gate D: Drain S: Source

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

MARKING



1



SOT-223

■ 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/ $^{\circ}\text{C}$
Junction Temperature			T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range			T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

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)	θ_{JA}	55	$^{\circ}\text{C/W}$
Junction to Case	θ_{JC}	12	$^{\circ}\text{C/W}$

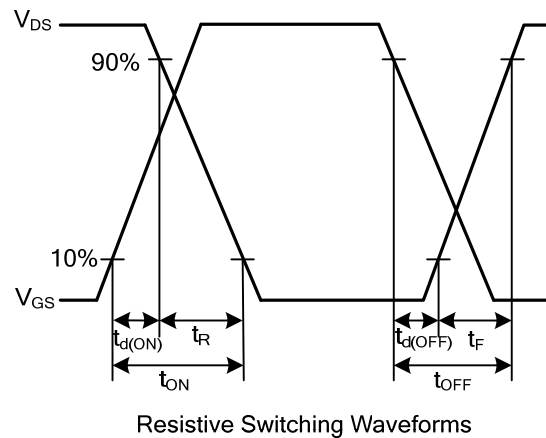
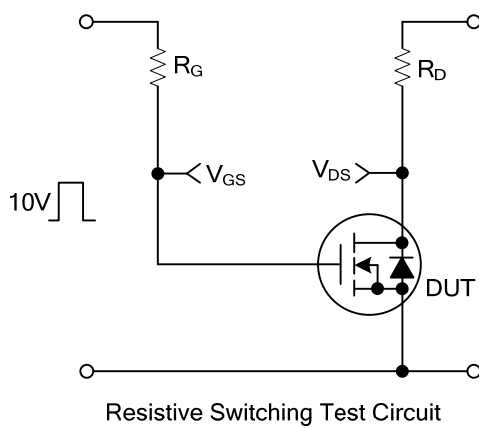
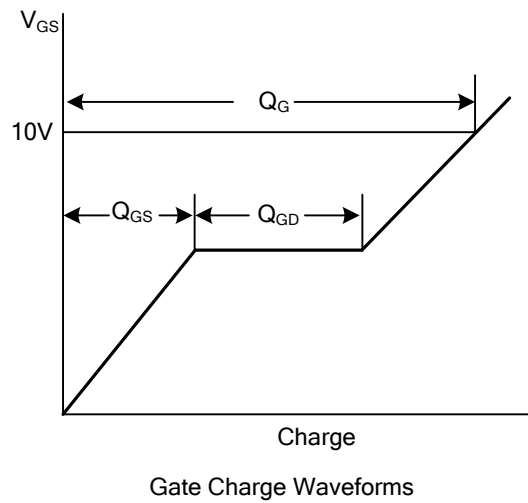
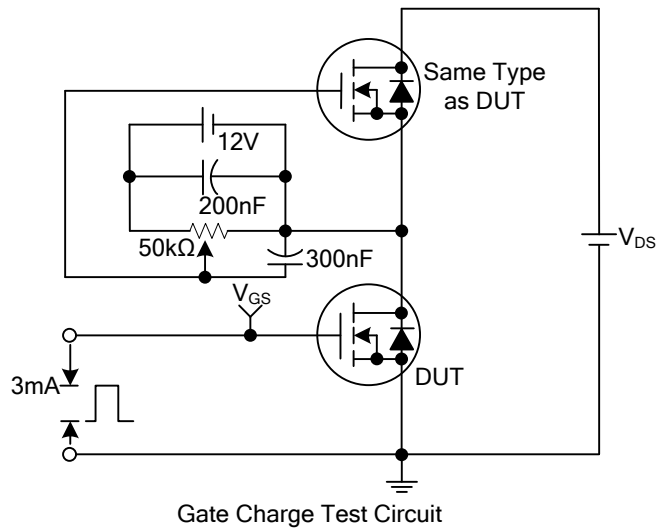
Notes: θ_{JA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.

■ 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 =250μA, V _{GS} =0V	100			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =100V, V _{GS} =0V			0.5	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							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Static Drain-Source On-State Resistance(Note 1)		R _{DS(ON)}	V _{GS} =10V, I _D =1.5A			0.7	Ω
			V _{GS} =4.5V, I _D =1A			1.0	Ω
DYNAMIC PARAMETERS							
Input Capacitance (Note 3)		C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		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} =10V, V _{DS} =50V, I _D =1A		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} =30V, I _D =1A, R _G ≈6Ω, V _{GS} =10V		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°C (Note 2)			1	A
Maximum Body-Diode Pulsed Current		I _{SM}	T _A =25°C (Note 3)			4.3	A
Drain-Source Diode Forward Voltage (Note 1)		V _{SD}	I _S =1.5A, V _{GS} =0V			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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