

**UTT1D5N10****Power MOSFET**

1.5A, 100V N-CHANNEL LOGIC LEVEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

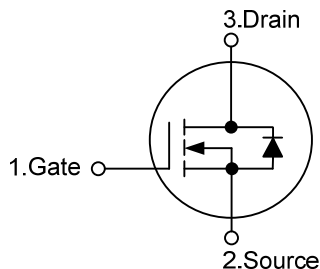
DESCRIPTION

The UTC **UTT1D5N10** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high switch speed and low gate charge.

FEATURES

- * $R_{DS(ON)} \leq 280 \text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=0.75\text{A}$
- $R_{DS(ON)} \leq 300 \text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=0.7\text{A}$
- * High switch speed
- * Low gate charge

SYMBOL



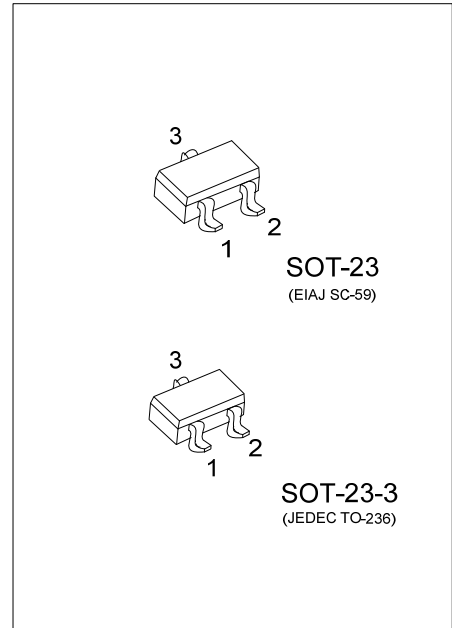
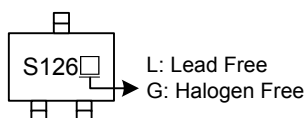
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT1D5N10L-AE2-R	UTT1D5N10G-AE2-R	SOT-23-3	G	S	D	Tape Reel
UTT1D5N10L-AE3-R	UTT1D5N10G-AE3-R	SOT-23	G	S	D	Tape Reel

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

UTT1D5N10G-AE2-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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 (Note 1)	T _A =25°C	I _D	1.5	A
		T _A =70°C		1.2	A
	Pulsed (Note 2)		I _{DM}	5	A
Power Dissipation (Note 1)	T _A =25°C		P _D	1.25	W
	T _A =70°C			0.8	W
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 DATA

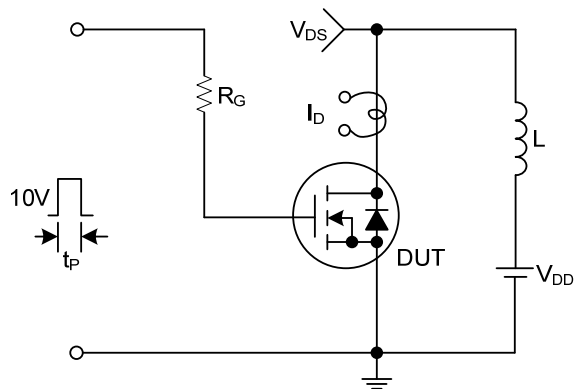
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	100	°C/W

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

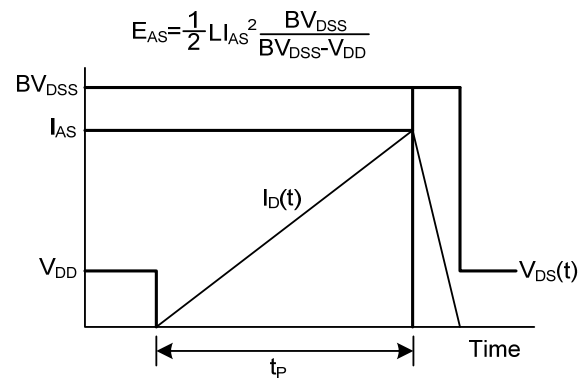
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	100			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	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	1.0	1.7	2.5	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =0.75A			280	mΩ
			V _{GS} =4.5V, I _D =0.7A			300	mΩ
DYNAMIC PARAMETERS (Note 3)							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		250		pF
Output Capacitance		C _{OSS}			22		pF
Reverse Transfer Capacitance		C _{RSS}			16		pF
SWITCHING PARAMETERS (Note 3)							
Total Gate Charge		Q _G	V _{DS} =80V, V _{GS} =10V, I _D =1.5A I _G =1mA		12		nC
Gate to Source Charge		Q _{GS}			1.8		nC
Gate to Drain Charge		Q _{GD}			2		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =50V, V _{GS} =10V, I _D =1.5A, R _G =25Ω		2.5		ns
Rise Time		t _R			16		ns
Turn-OFF Delay Time		t _{D(OFF)}			32		ns
Fall-Time		t _F			23		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S				1	A
Maximum Body-Diode Pulsed Current (Note 1)		I _{SM}				2	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =1.5A, V _{GS} =0V		0.8	1.2	V
Body Diode Reverse Recovery Time		t _{rr}	I _S =1A, V _{GS} =0V, dI _F /dt=100A/μs		45		ns
Body Diode Reverse Recovery Charge		Q _{rr}			52		nC

- Notes: 1. Surface Mounted on FR4 Board, t ≤ 10sec.
2. Pulse Test:Pulse Width≤300us, Duty Cycle≤ 2%.
3. Guaranteed by design, not subject to production testing.
4. Starting T_J=25°C, L=0.5mH, V_{DD}=50V.(See Figure1)

■ TEST CIRCUITS AND WAVEFORMS



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

Figure 1.

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