



UTD436

Preliminary

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

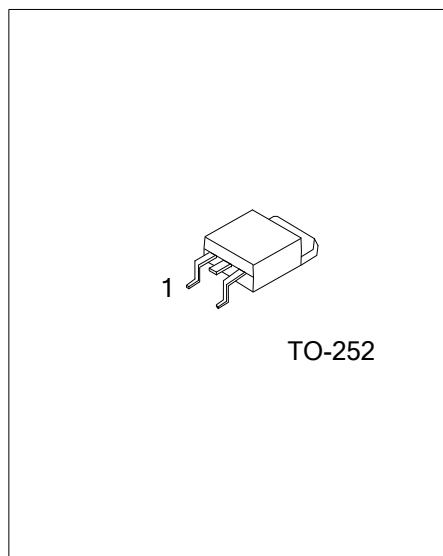
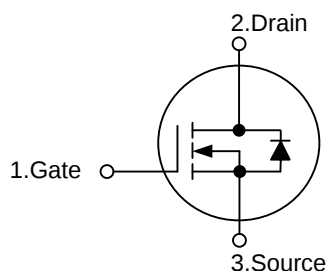
DESCRIPTION

The **UTD436** uses UTC's advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} \leq 7.5 \text{ m}\Omega$ @ $V_{GS}=10V$, $I_D=20A$
- * $R_{DS(ON)} \leq 13 \text{ m}\Omega$ @ $V_{GS}=4.5V$, $I_D=20A$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



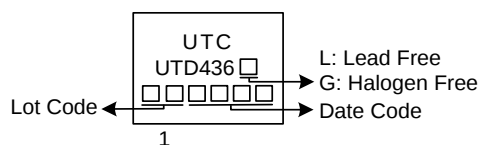
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTD436L-TN3-R	UTD436G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTD436G-TN3-R 		(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free
--------------------------	--	--

MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	60	A
Pulsed Drain Current	I _{DM}	130	A
Avalanche Current	I _{AR}	30	A
Repetitive Avalanche Energy L=0.1mH	E _{AR}	113	mJ
Power Dissipation	P _D	50	W
Junction Temperature	T _J	+175	°C
Storage Temperature	T _{STG}	-55 ~ +175	°C

Notes: 1. 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.

2. Repetitive Rating: Pulse width limited by maximum junction temperature

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ _{JA}		39	50	°C/W
Junction-to-Case	θ _{JC}		2	3	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30			V	
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA	
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			100	nA	
ON CHARACTERISTICS							
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	1.8	3	V	
On State Drain Current	I _{D(ON)}	V _{DS} =5V, V _{GS} =10V	85			A	
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		5.4	7.5	mΩ	
		V _{GS} =4.5V, I _D =20A		9.8	13	mΩ	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		88		S	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=100kHz		1520	1825	pF	
Output Capacitance	C _{OSS}			306		pF	
Reverse Transfer Capacitance	C _{RSS}			214		pF	
SWITCHING PARAMETERS							
Total Gate Charge	10V	Q _G	V _{DS} =15V, V _{GS} =4.5V, I _D =20A		31.9	39	nC
	4.5V				16.2	20	
Gate Source Charge	Q _{GS}			5		nC	
Gate Drain Charge	Q _{GD}			9.6		nC	
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω, R _G =3Ω			7		ns
Turn-ON Rise Time	t _R				11.6		ns
Turn-OFF Delay Time	t _{D(OFF)}			24.2		ns	
Turn-OFF Fall-Time	t _F			7.7		ns	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current	I _S				85	A	
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.71	1	V	
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A, dI/dt=100A/μs		23.8	30	ns	
Body Diode Reverse Recovery Charge	Q _{rr}			15.7		nC	

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.