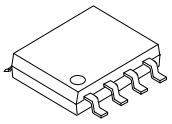
UT4435

Power MOSFET

-8.8A, 30V P-CHANNEL POWER MOSFET



SOP-8

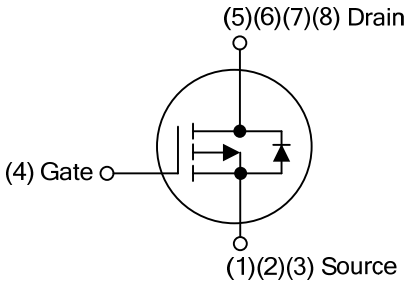
■ DESCRIPTION

The **UT4435** uses 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

* $R_{DS(ON)}$ ≤ 20 mΩ @ V_{GS}=-10V, I_D=-8.8A
* $R_{DS(ON)}$ ≤ 35 mΩ @ V_{GS} = - 4.5V, I_D=-6.7A
* Low capacitance
* Low gate charge
* Fast switching capability
* Avalanche energy specified

■ SYMBOL



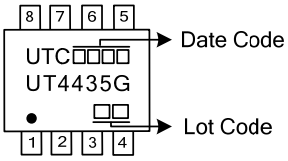
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT4435G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT4435G-S08-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free

■ MARKING

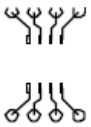


■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±25	V
Continuous Drain Current (Note 3a)	I_D	-8.8	A
Pulsed Drain Current	I_{DM}	-50	A
Power Dissipation (Note 3b)	P_D	1	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°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. Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%.
3. 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. θ_{JC} is guaranteed by design while θ_{JA} is determined by the user's board design.

a) 50°C/W when mounted on a 1in^2 pad of 2 oz copper



b) 125°C/W when mounted on a minimum pad.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 3a)	θ_{JA}	50	°C/W
Junction to Ambient(Note 3b)		125	°C/W
Junction to Case	θ_{JC}	25	°C/W

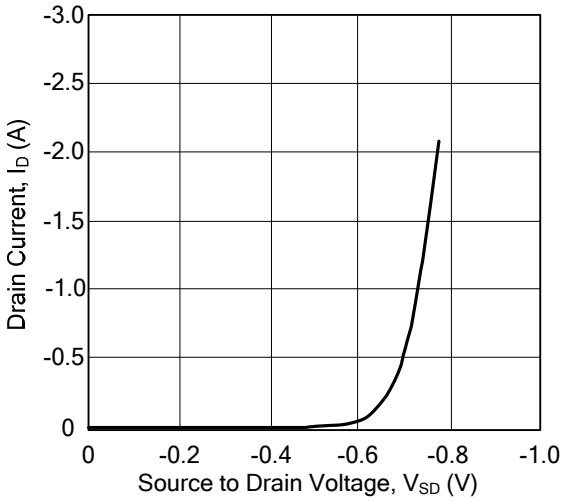
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0 V, I_D=-250μA	-30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24 V, V_{GS}=0V			-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= ±25 V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS(Note)						
Gate-Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-1	-1.7	-3	V
On State Drain Current	$I_{D(ON)}$	V_{GS}= -10V, V_{DS}=-5V	-50			A
Static Drain–Source On–Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-8.8A		16.5	20	mΩ
		V_{GS}=4.5V, I_D=-6.7A		26	35	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-8.8A		24		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz		1604		pF
Output Capacitance	C_{OSS}			408		pF
Reverse Transfer Capacitance	C_{RSS}			202		pF
SWITCHING PARAMETERS(Note)						
Total Gate Charge	Q_G	V_{DS} =-15V, V_{GS}=-5 V, I_D=-8.8 A		17	24	nC
Gate-Source Charge	Q_{GS}			5		nC
Gate-Drain Charge	Q_{GD}			6		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{DD}=-15V, I_D=-1A,V_{GS}=-10V R_G=6 Ω		13	23	ns
Turn-ON Rise Time	t_R			13.5	24	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			42	68	ns
Turn-OFF Fall-Time	t_F			25	40	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage(Note)	V_{SD}	I_S=-2.1A, V_{GS}=0V		-0.73	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2.1	A

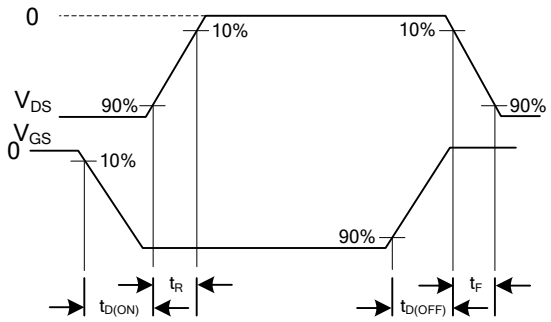
Note: Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%.

■ TYPICAL CHARACTERISTICS

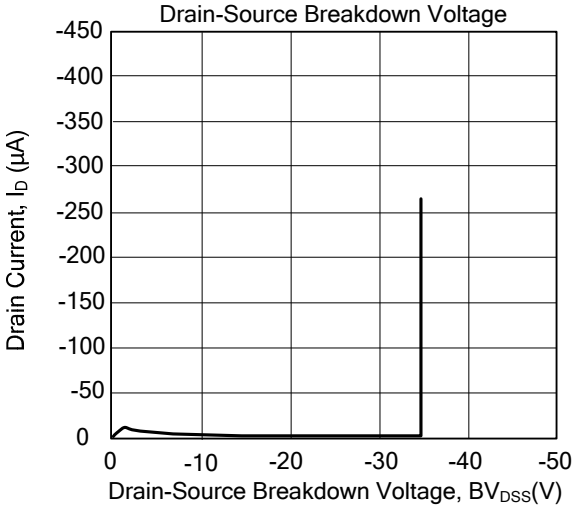
Drain Current vs. Source to Drain Voltage



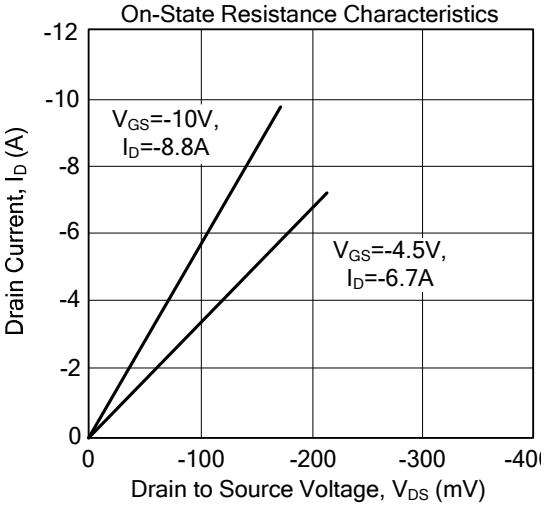
Switching Time Waveforms



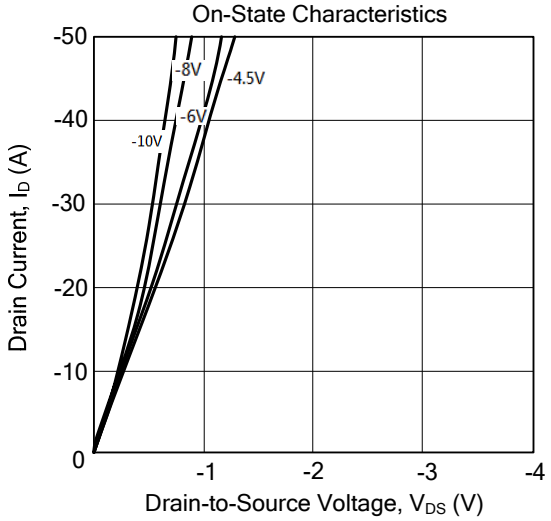
Drain Current vs.
Drain-Source Breakdown Voltage



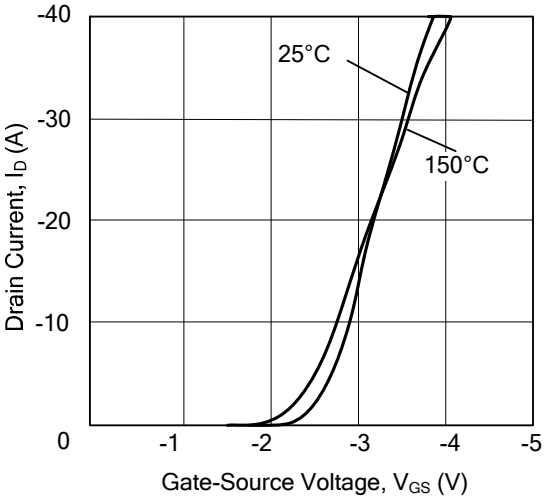
Drain-Source
On-State Resistance Characteristics



On-State Characteristics

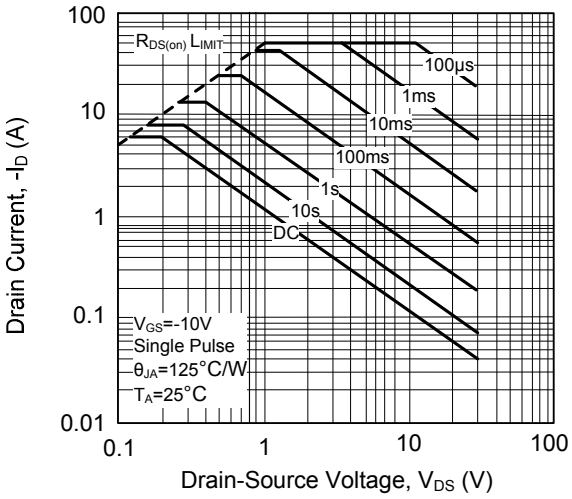


Transfer Characteristics



■ TYPICAL CHARACTERISTICS (Cont.)

Safe Operating Area



Transient Thermal Response Curve