



UT4422

Power MOSFET

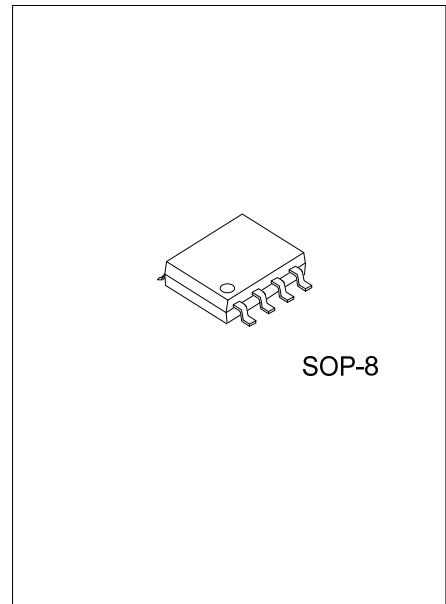
N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

DESCRIPTION

The **UT4422** 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

- * $R_{DS(ON)} = 15m\Omega @ V_{GS} = 10V$
- * Low Capacitance
- * Low Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified

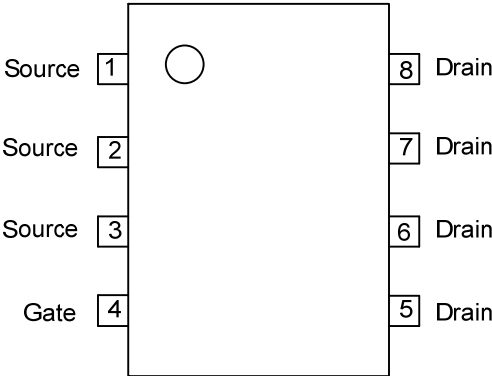


ORDERING INFORMATION

Ordering Number	Package	Packing
UT4422G-S08-R	SOP-8	Tape Reel

UT4422G-S08-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) S08: SOP-8
	(3)Halogen Free	(3) G: Halogen Free

■ PIN CONFIGURATION



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	
Continuous Drain Current ($T_A=25^\circ\text{C}$) (Note 1)	I_D	11	A
Pulsed Drain Current	I_{DM}	50	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	3	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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 width limited by $T_{J(MAX)}$

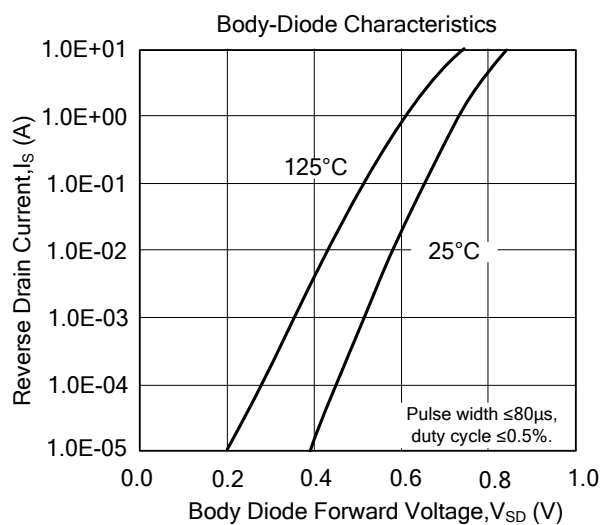
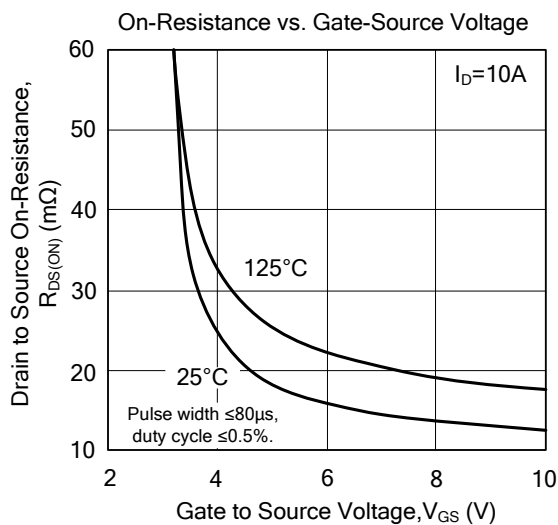
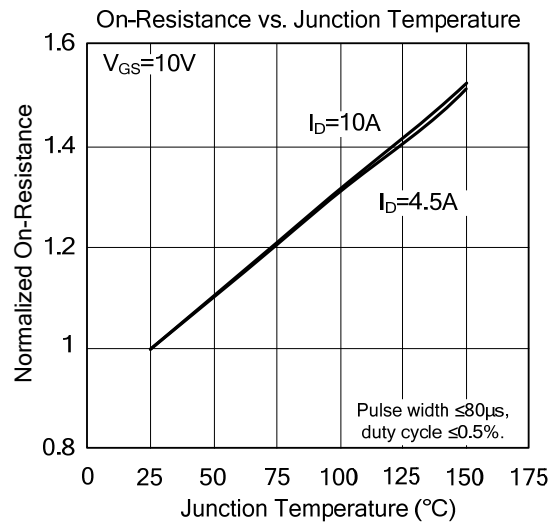
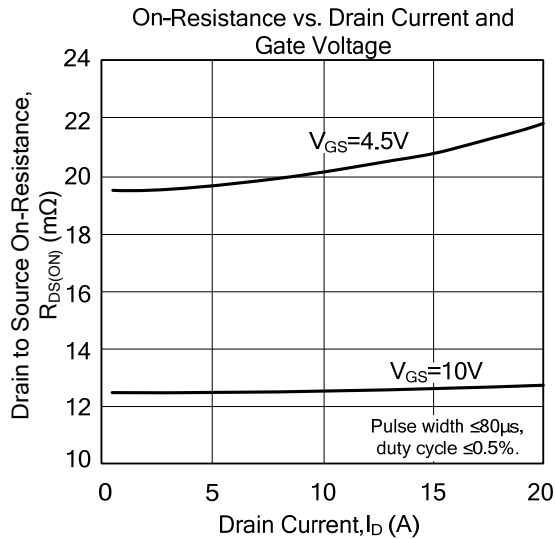
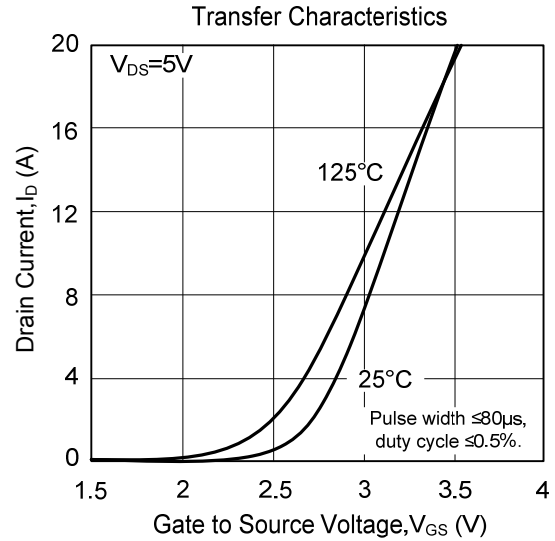
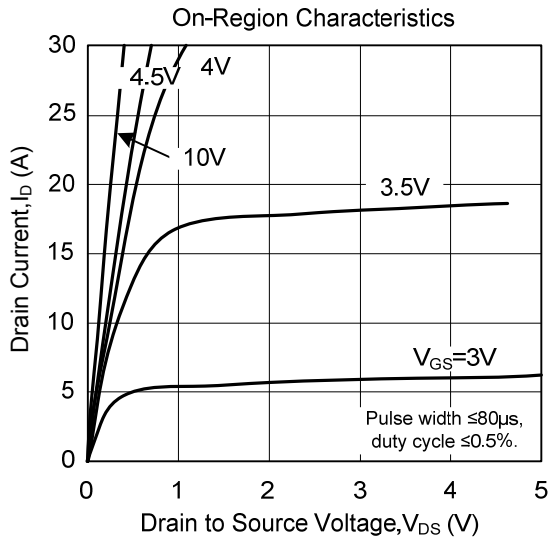
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	59 ~ 75	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	16 ~ 24	

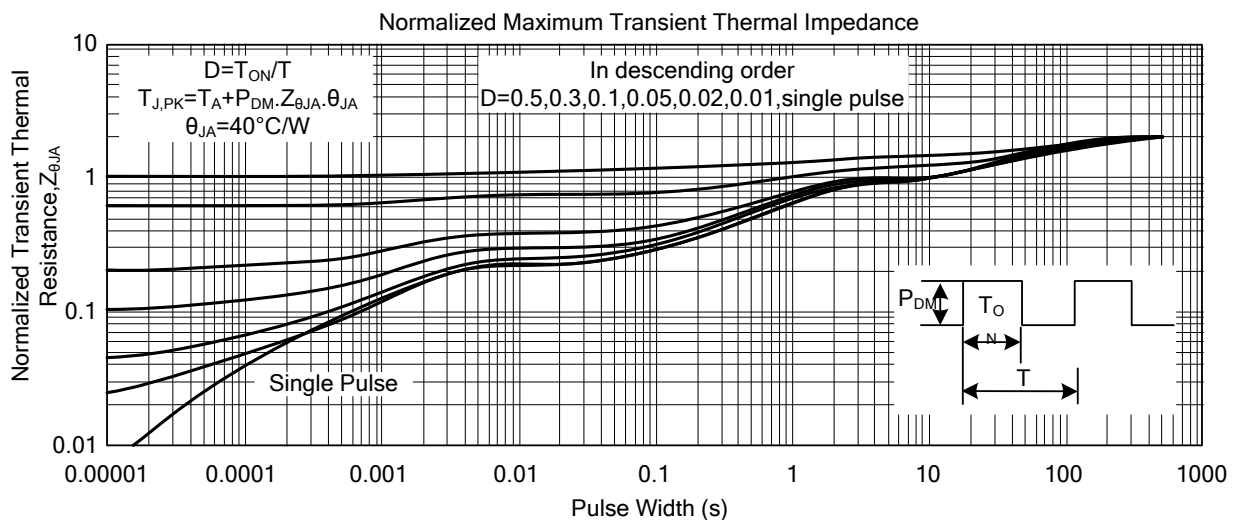
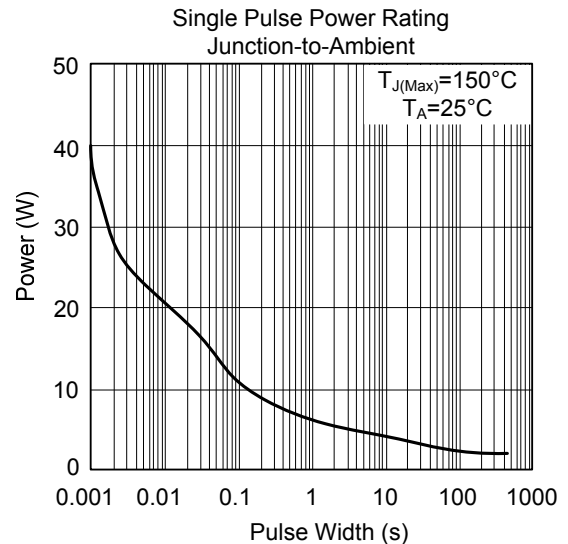
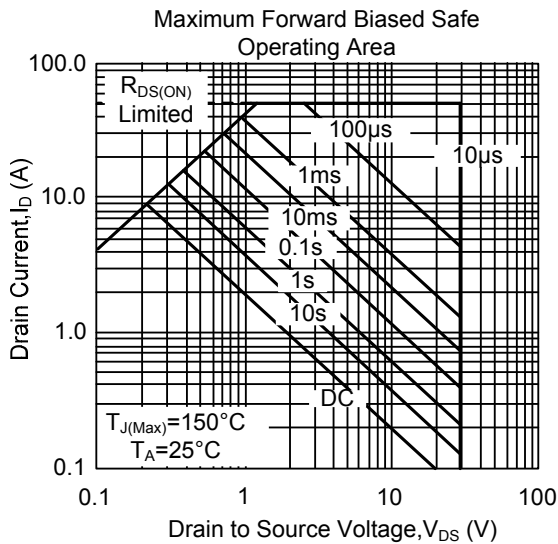
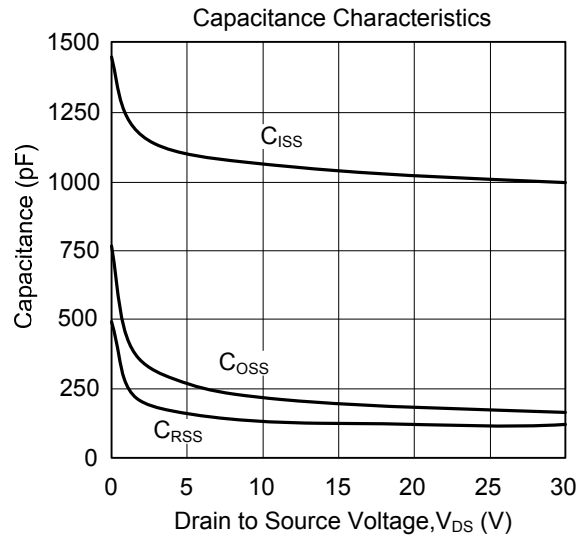
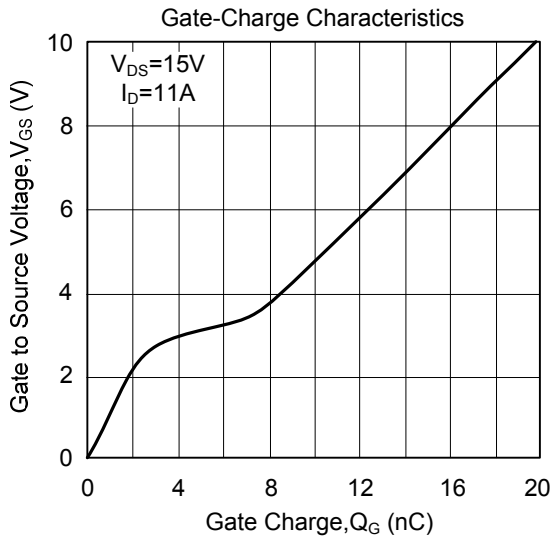
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$		0.003	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1	1.8	3	V
On State Drain Current	$I_{D(ON)}$	$V_{DS} = 5\text{ V}, V_{GS} = 4.5\text{ V}$	40			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{ V}, I_D = 11\text{ A}$		12.6	15	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 10\text{ A}$		19.6	24	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$	800	1040	1250	pF
Output Capacitance	C_{OSS}		140	180	220	
Reverse Transfer Capacitance	C_{RSS}		80	110	140	
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS} = 15\text{ V}, V_{GS} = 10\text{ V}, I_D = 11\text{ A}$	15	19.8	24	nC
Gate Source Charge	Q_{GS}		2.5			
Gate Drain Charge	Q_{GD}		3.5			
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS} = 10\text{ V}, V_{DS} = 15\text{ V}, R_L = 1.35\ \Omega, R_{GEN} = 3\ \Omega$		4.5	6.5	ns
Turn-ON Rise Time	t_R		3.9	5.5		
Turn-OFF Delay Time	$t_{D(OFF)}$		17.4	25		
Turn-OFF Fall-Time	t_F		3.2	5		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V_{SD}	$I_S = 1\text{ A}, V_{GS} = 0\text{ V}$		0.75	1	V
Maximum Body-Diode Continuous Current	I_S				4.3	A
Body Diode Reverse Recovery Time	t_{RR}	$I_F = 11\text{ A}, dI/dt = 100\text{ A}/\mu\text{s}$		17.5	21	ns
Body Diode Reverse Recovery Charge	Q_{RR}			9.3	12	nC

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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