



P-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The UTC **UTT4407** is a P-channel enhancement mode power MOSFET using UTC's advanced trench technology to provide customers with a minimum on-state resistance and extremal low gate charge with a 25V gate rating

The UTC **UTT4407** is universally applied in PWM or used as a load switch.

FEATURES

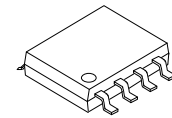
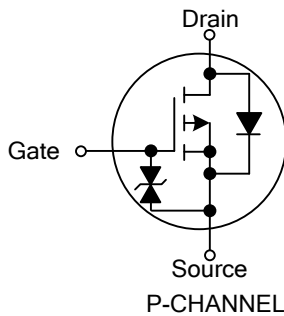
* $V_{DS(V)} = -30V$

* $I_D = -12A$ ($V_{GS} = -20V$)

* $R_{DS(ON)} < 13m\Omega$ @ $V_{GS} = -20V$, $I_D = -10A$

$R_{DS(ON)} < 14m\Omega$ @ $V_{GS} = -4.5V$, $I_D = -10A$

SYMBOL



SOP-8

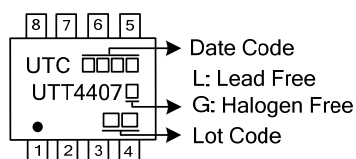
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT4407L-S08-R	UTT4407G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTT4407G-S08-R		(1)Packing Type	(1) R: Tape Reel
		(2)Package Type	(2) S08: SOP-8
		(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ ABSOLUTE 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}	± 25	
Drain Current	Continuous(Note 2)	$T_A = 25^\circ\text{C}$	I_D	-12	A
		$T_A = 70^\circ\text{C}$		-10	
	Pulsed (Note 3)		I_{DM}	-60	
Power Dissipation (Note 2)		$T_A = 25^\circ\text{C}$	P_D	3	W
		$T_A = 70^\circ\text{C}$		2.1	
Junction Temperature			T_J	+150	$^\circ\text{C}$
Storage Temperature			T_{STG}	-55 ~ + 150	$^\circ\text{C}$

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. Device mounted on 1in² FR-4 board with 2oz. Copper, $t = 10\text{sec}$.

3. Repetitive rating, pulse width limited by junction temperature.

■ THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	θ_{JA}	75	$^\circ\text{C/W}$

Note: Device mounted on 1in² FR-4 board with 2oz. Copper, $t = 10\text{sec}$.

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

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} =-24V,V _{GS} =0 V			-1	μA
			V _{DS} =-24V,V _{GS} =0 V,T _J =55°C			-5	
Gate- Source Leakage Current	Forward	I _{GSS}	V _{GS} =+25V,V _{DS} =0V			+100	μA
	Reverse		V _{GS} =-25V,V _{DS} =0V			-100	
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250 μA	-1.7	-2.5	-3	V
Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =-10V, I _D =-10A		11	14	mΩ
			V _{GS} =-10V,I _D =-10A,T _J =125°C		15	19	mΩ
			V _{GS} =-20V, I _D =-10A		10	13	mΩ
			V _{GS} =-4.5V, I _D =-10A		24		mΩ
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{DS} =-15 V, V _{GS} =0V, f=1MHz		2076	2500	pF	
Output Capacitance	C _{OSS}			503			
Reverse Transfer Capacitance	C _{RSS}			302			
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz		2	3	Ω	
SWITCHING PARAMETERS							
Total Gate Charge	Q _G	V _{DS} =-15V,V _{GS} =-10V, I _D =-12A		37.2	45	nC	
Gate Source Charge	Q _{GS}			7			
Gate Drain Charge	Q _{GD}			10.4			
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =-15V, V _{GS} =-10V, R _L =1.25Ω, R _{GEN} =3Ω		12.4		ns	
Turn-ON Rise Time	t _R			8.2			
Turn-OFF Delay Time	t _{D(OFF)}			25.6			
Turn-OFF Fall-Time	t _F			12			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V		-0.72	-1	V	
Maximum Continuous Drain-Source Diode Forward Current	I _S				-4.2	A	
Body Diode Reverse Recovery Time	t _{rr}	I _F =-12 A, dI/dt=100A/μs		33	40	ns	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =-12A, dI/dt=100A/μs		23		nC	

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