



## UT8067-H

Preliminary

Power MOSFET

### 9A, 30V N-CHANNEL POWER MOSFET

#### DESCRIPTION

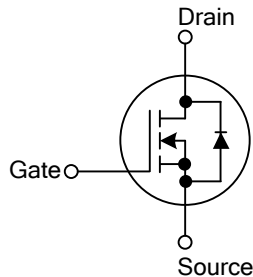
The UTC **UT8067-H** is a N-Channel MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance, high switching speed and low gate charge, etc.

The UTC **UT8067-H** is suitable for high efficiency fast switching, MB, VGA, Vcore and POL applications.

#### FEATURES

- \*  $R_{DS(ON)} \leq 18\text{ m}\Omega @ V_{GS}=10\text{V}, I_D=8.0\text{A}$
- $R_{DS(ON)} \leq 28\text{ m}\Omega @ V_{GS}=4.5\text{V}, I_D=5.0\text{A}$
- \* High switching speed
- \* Low gate charge

#### SYMBOL



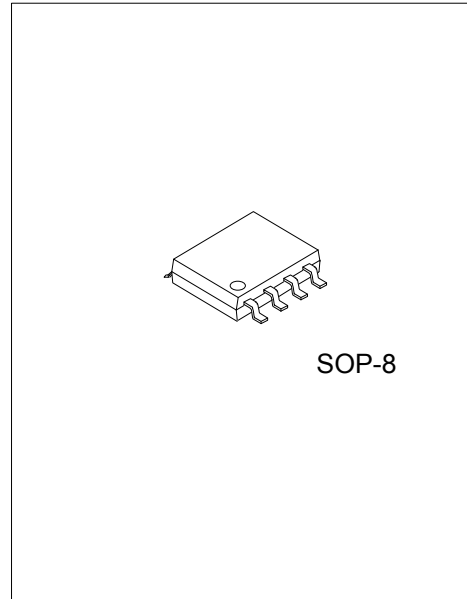
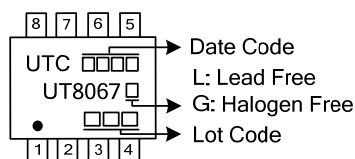
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing		
Lead Free	Halogen Free		1	2	3	4	5	6		7	8
UT8067L-S08-R	UT8067G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT8067G-S08-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ\text{C}$ , unless otherwise noted)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			$V_{DSS}$	30	V
Gate-Source Voltage			$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$T_C=25^\circ\text{C}$	$I_D$	9	A
		$T_C=100^\circ\text{C}$		5.7	A
	Pulsed (Note 1)		$I_{DM}$	36	A
Single Pulse Avalanche Current (Note 2)			$I_{AS}$	8	A
Single Pulse Avalanche Energy (Note 2)			$E_{AS}$	32	mJ
Power Dissipation	$T_C=25^\circ\text{C}$		$P_D$	2.5	W
	Derate above $25^\circ\text{C}$			0.02	W/ $^\circ\text{C}$
Junction Temperature			$T_J$	-55~+150	$^\circ\text{C}$
Storage Temperature Range			$T_{STG}$	-55~+150	$^\circ\text{C}$

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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	60	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	30			V
BV <sub>DSS</sub> Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25°C, I <sub>D</sub> =1mA		0.04		V/°C
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C			1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			10	μA
Gate-Source Leakage Current	Forward	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V			+100	nA
	Reverse	V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V			-100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.2	1.6	2	V
V <sub>GS(TH)</sub> Temperature Coefficient	ΔV <sub>GS(TH)</sub>			-4		mV/°C
Static Drain-Source On-State Resistance (Note 3)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A		16	18	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		23	28	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =5A		4		S
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHz		345	500	pF
Output Capacitance	C <sub>OSS</sub>			55	80	pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			32	45	pF
Gate Resistance	R <sub>G</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1.0MHz		3.2	6.4	Ω
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge (Note 3, 4)	Q <sub>G</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =8A		4.1	6	nC
Gate to Source Charge (Note 3, 4)	Q <sub>GS</sub>			1	1.4	nC
Gate to Drain Charge (Note 3, 4)	Q <sub>GD</sub>			2.1	4	nC
Turn-ON Delay Time (Note 3, 4)	t <sub>D(ON)</sub>	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =1A, R <sub>G</sub> =6Ω		2.8	5	ns
Rise Time (Note 3, 4)	t <sub>R</sub>			7.2	14	ns
Turn-OFF Delay Time (Note 3, 4)	t <sub>D(OFF)</sub>			15.8	30	ns
Fall-Time (Note 3, 4)	t <sub>F</sub>			4.6	9	ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Continuous Source Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current			9	A
Pulsed Source Current (Note 3)	I <sub>SM</sub>				36	A
Drain-Source Diode Forward Voltage (Note 3)	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C			1	V

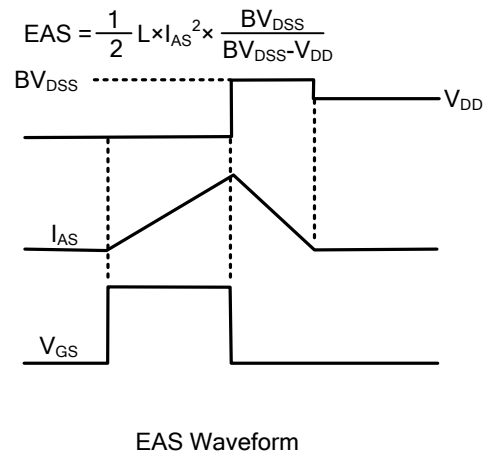
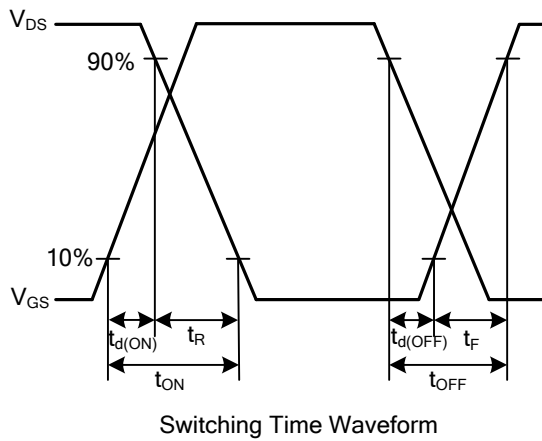
Notes: 1. Repetitive Rating: Pulsed width limited by maximum junction temperature.

2. V<sub>DD</sub>=25V, V<sub>GS</sub>=10V, L=1mH, I<sub>AS</sub>=8A., R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C.

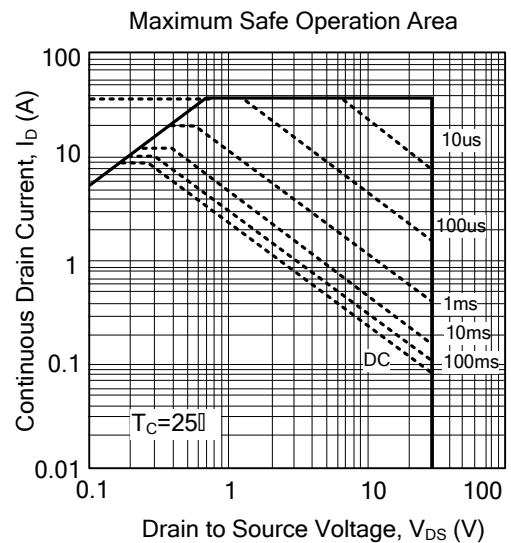
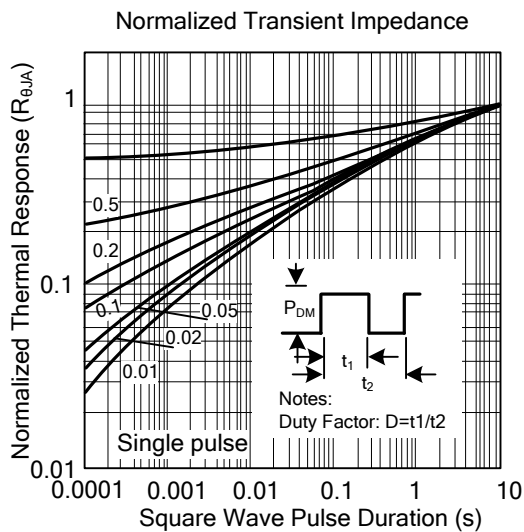
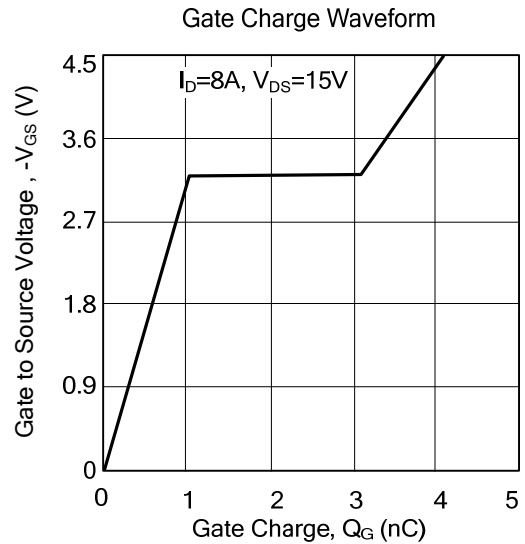
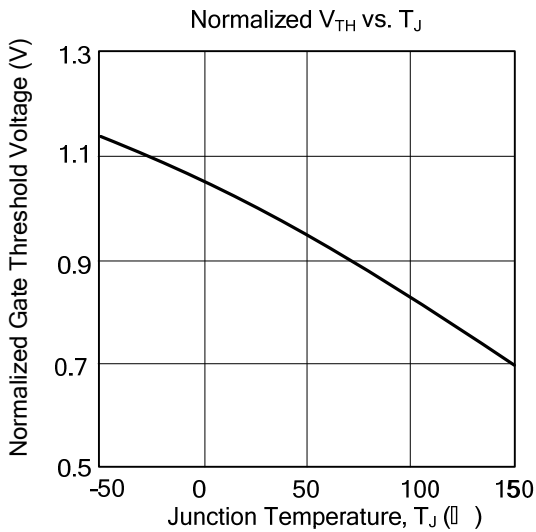
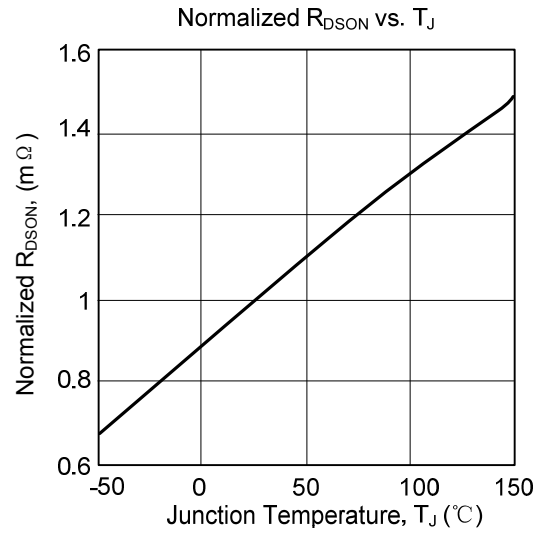
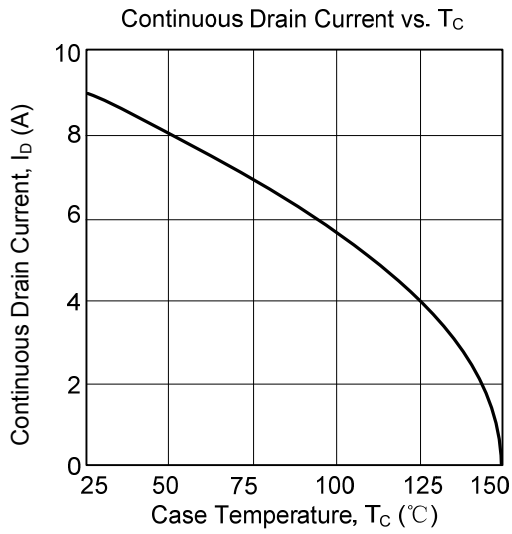
3. The data tested by pulsed, pulse width≤300μs, duty cycle≤2%.

4. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS



■ TYPICAL CHARACTERISTICS



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