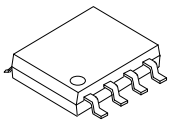
9A, 30V N-CHANNEL POWER MOSFET



SOP-8

■ DESCRIPTION

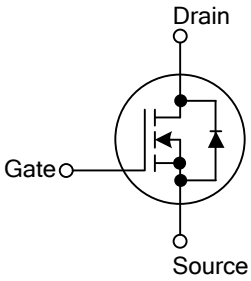
The UTC **UT8067-H** is a N-Channel MOSFET, it uses UTC's advanced technology to provide customers with a minimum on-state resistance, high switching speed and low gate charge, etc.

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

■ FEATURES

* $R_{DS(ON)}$ ≤ 18 mΩ @ V_{GS}=10V, I_D=8.0A
  $R_{DS(ON)}$ ≤ 28 mΩ @ V_{GS}=4.5V, I_D=5.0A
* High switching speed
* Low gate charge

■ SYMBOL



■ ORDERING INFORMATION

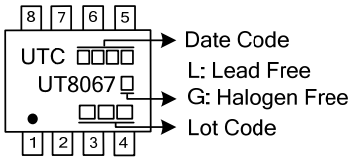
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT8067L-S08-R	UT8067G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT8067G-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_C=25°C, unless otherwise noted)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±20	V
Drain Current	Continuous	T_C=25°C	I_D	9	A
		T_C=100°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°C		P_D	2.5	W
	Derate above 25°C			0.02	W/°C
Junction Temperature			T_J	-55~+150	°C
Storage Temperature Range			T_{STG}	-55~+150	°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

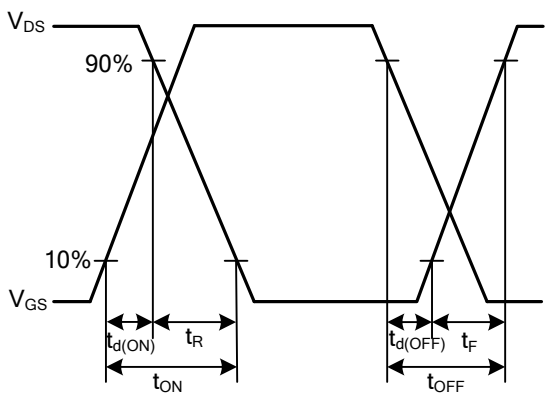
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	60	°C/W

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

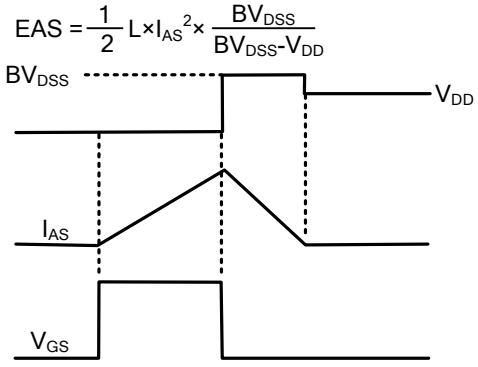
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	30			V
BV_{DSS} Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C, I_D=1mA		0.04		V/°C
Drain-Source Leakage Current		I_{DSS}	V_{DS}=30V, V_{GS}=0V, T_J=25°C			1	μA
			V_{DS}=24V, V_{GS}=0V, T_J=125°C			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	1.6	2	V
$V_{GS(TH)}$ Temperature Coefficient		$\triangle V_{GS(TH)}$			-4		mV/°C
Static Drain-Source On-State Resistance (Note 3)		$R_{DS(ON)}$	V_{GS}=10V, I_D=8A		16	18	mΩ
			V_{GS}=4.5V, I_D=5A		23	28	mΩ
Forward Transconductance		g_{FS}	V_{DS}=10V, I_D=5A		4		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		345	500	pF
Output Capacitance		C_{OSS}			55	80	pF
Reverse Transfer Capacitance		C_{RSS}			32	45	pF
Gate Resistance		R_G	V_{GS}=0V, V_{DS}=0V, f=1.0MHz		3.2	6.4	Ω
SWITCHING PARAMETERS							
Total Gate Charge (Note 3, 4)		Q_G	V_{GS}=4.5V, V_{DS}=15V, I_D=8A		4.1	6	nC
Gate to Source Charge (Note 3, 4)		Q_{GS}			1	1.4	nC
Gate to Drain Charge (Note 3, 4)		Q_{GD}			2.1	4	nC
Turn-ON Delay Time (Note 3, 4)		$t_{D(ON)}$	V_{DD}=15V, V_{GS}=10V, I_D=1A, R_G=6Ω		2.8	5	ns
Rise Time (Note 3, 4)		t_R			7.2	14	ns
Turn-OFF Delay Time (Note 3, 4)		$t_{D(OFF)}$			15.8	30	ns
Fall-Time (Note 3, 4)		t_F			4.6	9	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Continuous Source Current		I_S	V_G=V_D=0V , Force Current			9	A
Pulsed Source Current (Note 3)		I_{SM}				36	A
Drain-Source Diode Forward Voltage (Note 3)		V_{SD}	I_S=1A, V_{GS}=0V, T_J=25°C			1	V

Notes: 1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V, V_{GS}=10V, L=1mH, I_{AS}=8A., R_G=25Ω, Starting T_J=25°C.
3. The data tested by pulsed, pulse width≤300μs, duty cycle≤2%.
4. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS



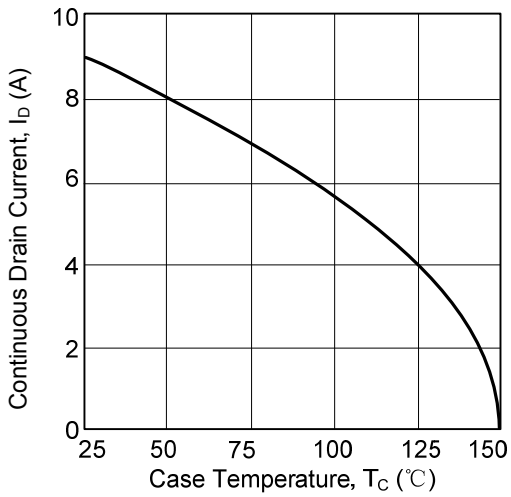
Switching Time Waveform



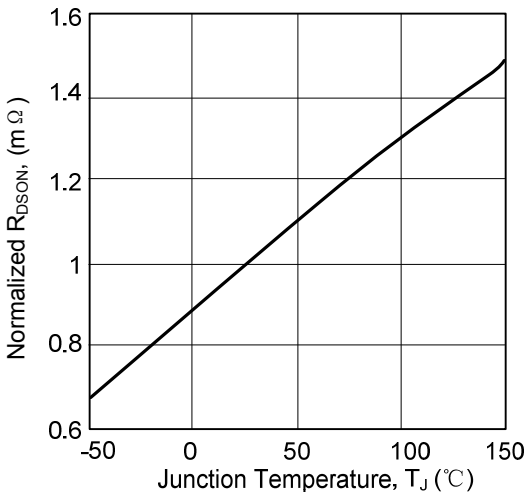
EAS Waveform

■ TYPICAL CHARACTERISTICS

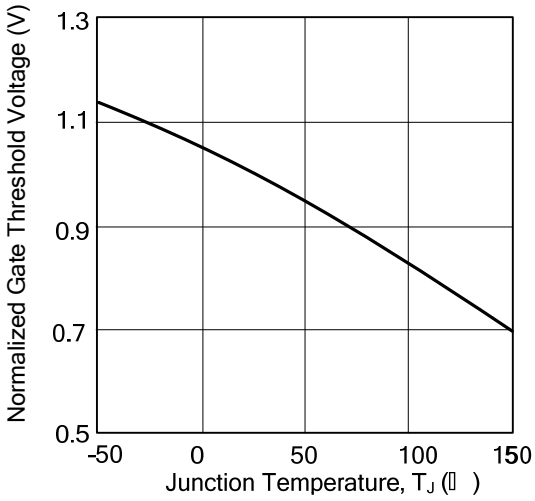
Continuous Drain Current vs. T_C



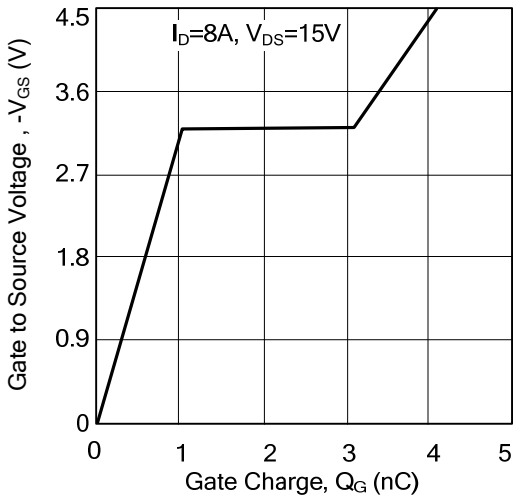
Normalized R_{DSON} vs. T_J



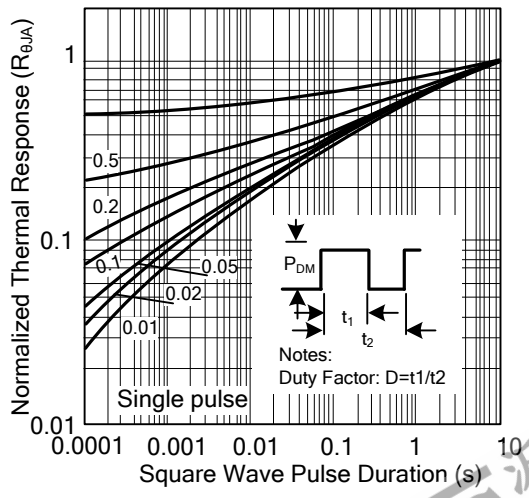
Normalized V_{TH} vs. T_J



Gate Charge Waveform



Normalized Transient Impedance



Maximum Safe Operation Area