



UT8067

Preliminary

Power MOSFET

9A, 30V, N-CHANNEL MOSFET

DESCRIPTION

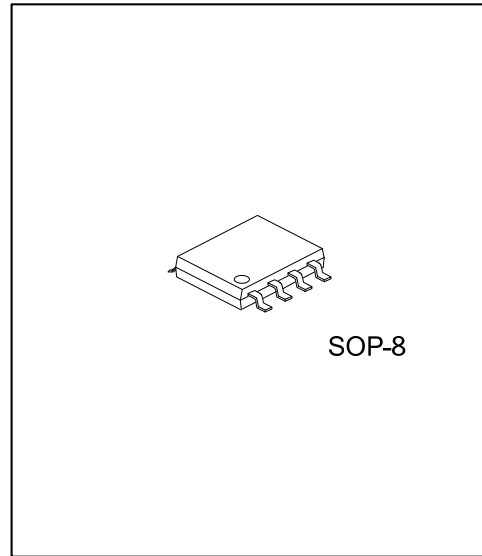
The UTC **UT8067** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, etc.

The UTC **UT8067** is suitable for high-efficiency DC-DC converters, mobile handsets and notebook PCs.

FEATURES

* $R_{DS(ON)} < 33\text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=4.5\text{A}$

* High switching speed



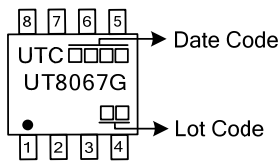
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
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 (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free</p>
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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}	± 20	V
Drain Current	Continuous (Note 1)	I_D	9	A
	Pulsed (Note 1)	I_{DM}	36	A
Avalanche Current		I_{AR}	9	A
Single Pulsed Avalanche Energy (Note 2)		E_{AS}	21	mJ
Power Dissipation ($t=10\text{s}$)		P_D	1.0	W
Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature Range		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. Repetitive Rating: Pulse width limited by maximum junction temperature

3. $L = 0.2\text{mH}$, $I_{AS} = 9\text{A}$, $V_{DD} = 24\text{V}$, $R_G = 1.2\Omega$, Starting $T_J = 25^{\circ}\text{C}$

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient ($t=10\text{s}$)	θ_{JA}	125	$^{\circ}\text{C/W}$

Note: Surface Mounted on 25.4 mmx25.4 mmx0.8mm FR4 Board.

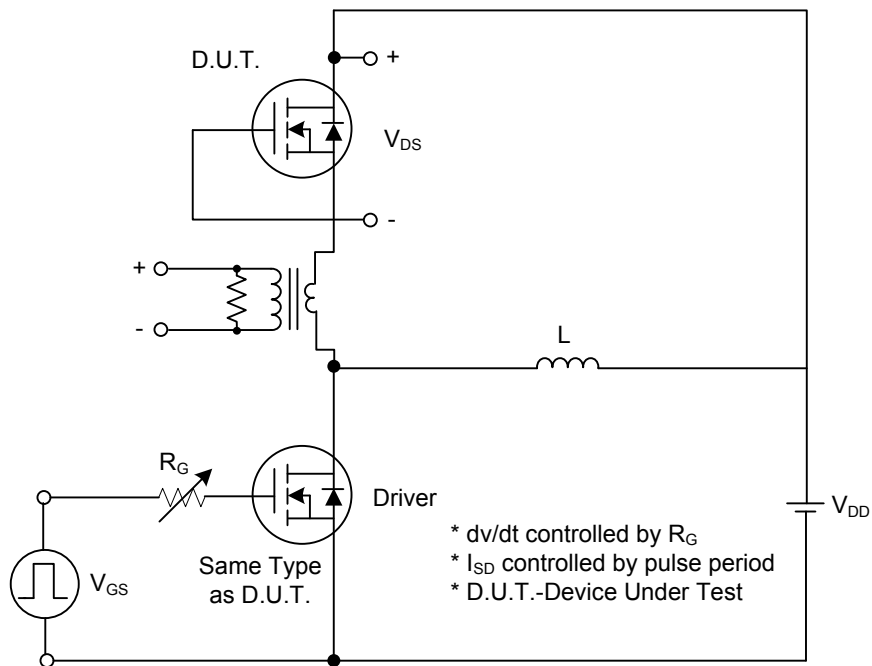
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=10\text{mA}$, $V_{GS}=0\text{V}$	30			V
	BV_{DSX}	$I_D=10\text{mA}$, $V_{GS}=-20\text{V}$	15			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$			10	μA
Gate-Source Leakage Current	I_{GSS}	Forward $V_{GS}=+20\text{V}$, $V_{DS}=0\text{V}$			+0.1	μA
		Reverse $V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			-0.1	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=10\text{V}$, $I_D=0.1\text{mA}$	1.3		2.3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5\text{V}$, $I_D=4.5\text{A}$		26	33	m Ω
		$V_{GS}=10\text{V}$, $I_D=4.5\text{A}$		20	25	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, $f=1.0\text{MHz}$		690		pF
Output Capacitance	C_{OSS}			120		pF
Reverse Transfer Capacitance	C_{RSS}			28		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DD}\approx 24\text{V}$, $V_{GS}=10\text{V}$, $I_D=9\text{A}$		9.5		nC
		$V_{DD}\approx 24\text{V}$, $V_{GS}=5\text{V}$, $I_D=9\text{A}$		4.7		nC
Gate to Source Charge	Q_{GS}	$V_{DD}\approx 24\text{V}$, $V_{GS}=10\text{V}$, $I_D=9\text{A}$		2.2		nC
Gate to Drain Charge	Q_{GD}			0.9		nC
Gate Resistance	R_G	$V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, $f=5\text{MHz}$		3.4	5.1	Ω
Turn-ON Delay Time	$t_{D(ON)}$			6.7		ns
Rise Time	t_R			2.1		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			15		ns
Fall-Time	t_F			2.1		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=9\text{A}$, $V_{GS}=0\text{V}$			-1.2	V
Continuous Drain-Source Current	I_{SD}				36	A

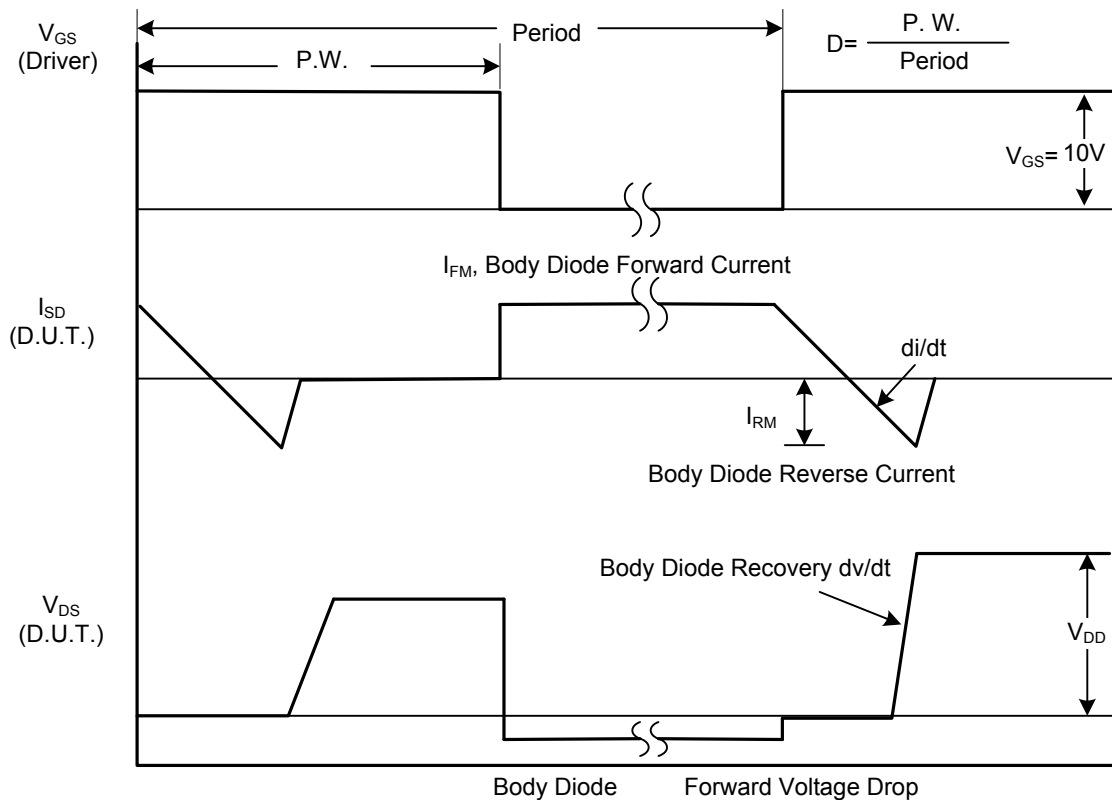
Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

2. Essentially independent of operating temperature

■ TEST CIRCUITS AND WAVEFORMS

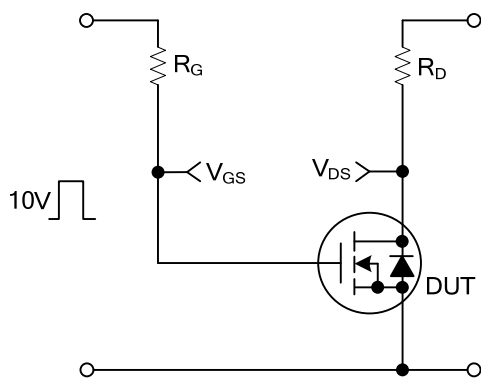


Peak Diode Recovery dv/dt Test Circuit

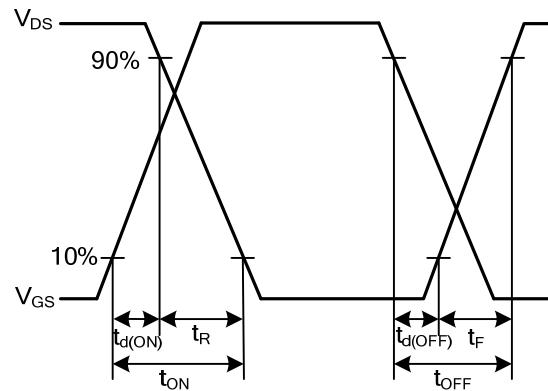


Peak Diode Recovery dv/dt Waveforms

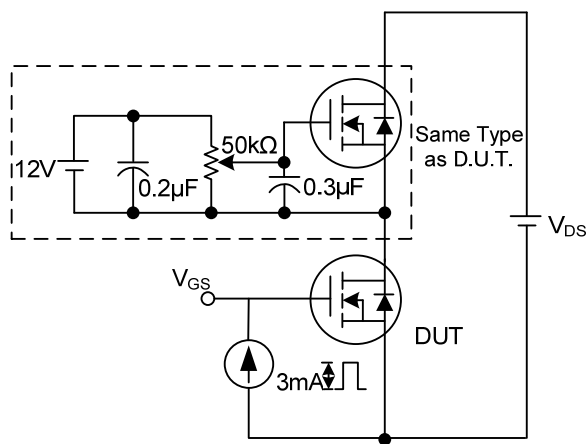
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



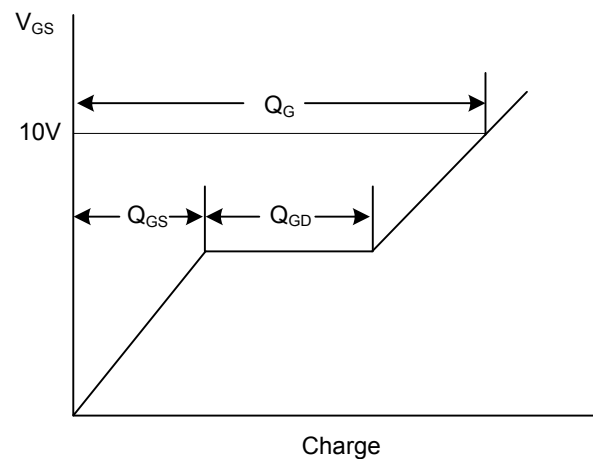
Switching Test Circuit



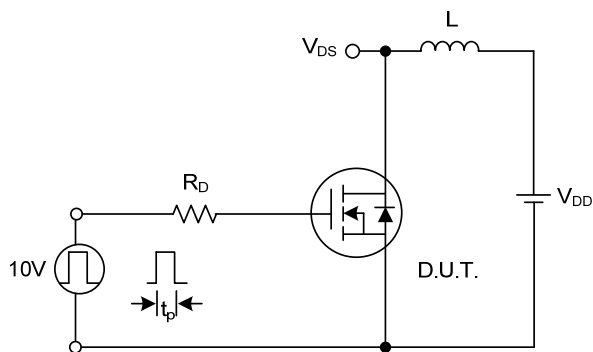
Switching Waveforms



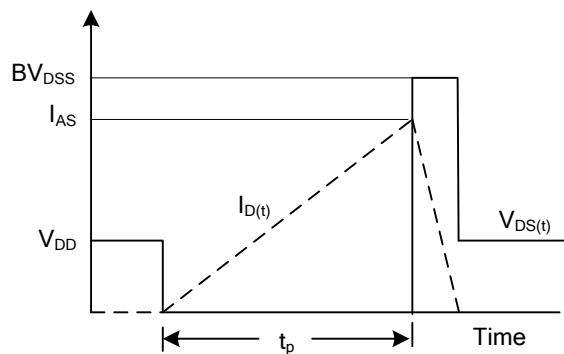
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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