



UT8067

Preliminary

Power MOSFET

9A, 30V, N-CHANNEL MOSFET

DESCRIPTION

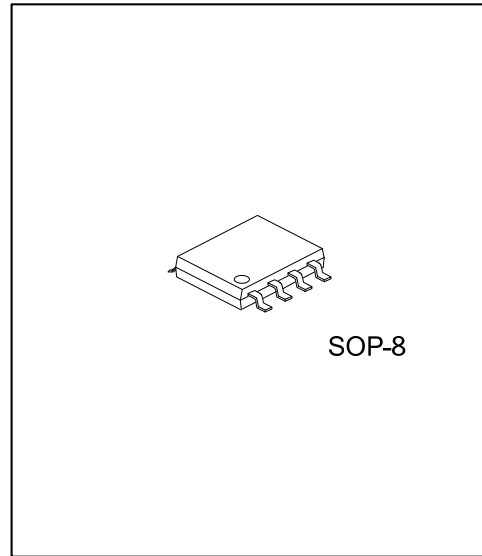
The UTC **UT8067** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, etc.

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



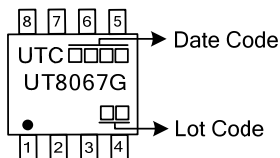
ORDERING INFORMATION

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°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=10s)		P _D	1.0	W
Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{STG}	-55~+150	°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 = 0.2mH, I_{AS} = 9A, V_{DD} = 24V, R_G = 1.2Ω, Starting T_J = 25°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (t=10s)	θ _{JA}	125	°C/W

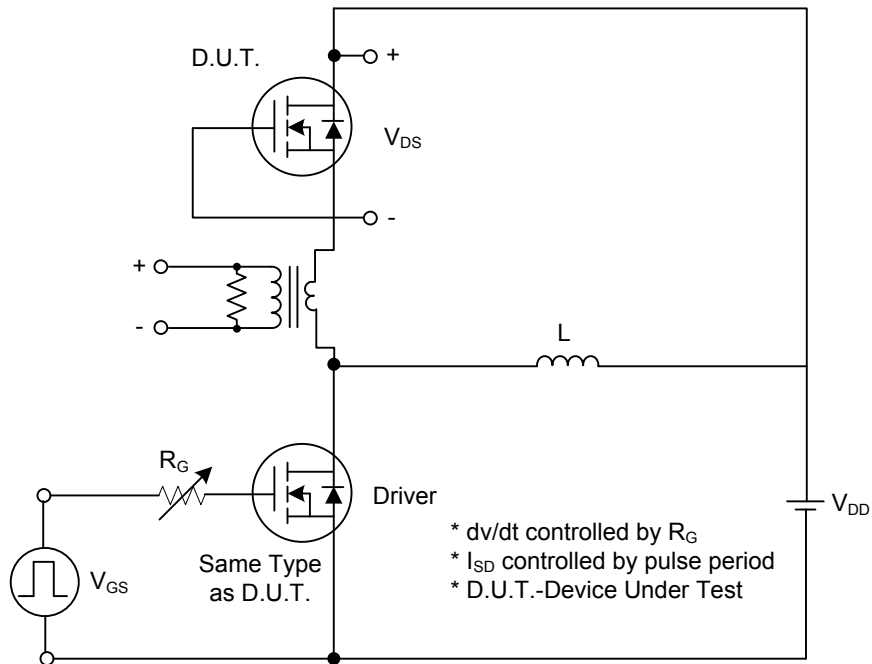
Note: Surface Mounted on 25.4 mm×25.4 mm×0.8mm FR4 Board.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

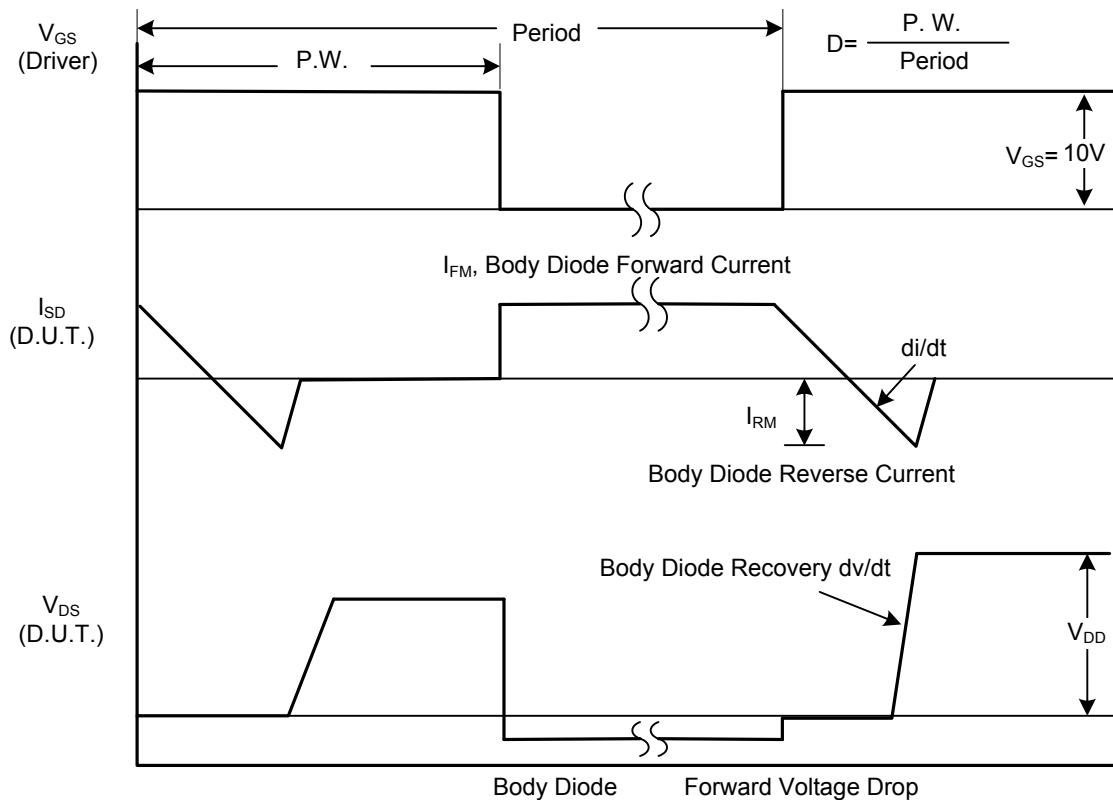
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =10mA, V _{GS} =0V	30			V
	BV _{DSX}	I _D =10mA, V _{GS} =-20V	15			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			10	μA
Gate-Source Leakage Current	I _{GSS}	Forward			+0.1	μA
		Reverse			-0.1	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =10V, I _D =0.1mA	1.3		2.3	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.5A		26	33	mΩ
		V _{GS} =10V, I _D =4.5A		20	25	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		690		pF
Output Capacitance	C _{OSS}			120		pF
Reverse Transfer Capacitance	C _{RSS}			28		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DD} ≈24V, V _{GS} =10V, I _D =9A		9.5		nC
		V _{DD} ≈24V, V _{GS} =5V, I _D =9A		4.7		nC
Gate to Source Charge	Q _{GS}	V _{DD} ≈24V, V _{GS} =10V, I _D =9A		2.2		nC
Gate to Drain Charge	Q _{GD}			0.9		nC
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =10V, f=5MHz		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} =9A, V _{GS} =0V			-1.2	V
Continuous Drain-Source Current	I _{SD}				36	A

- Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%
 2. Essentially independent of operating temperature

■ TEST CIRCUITS AND WAVEFORMS

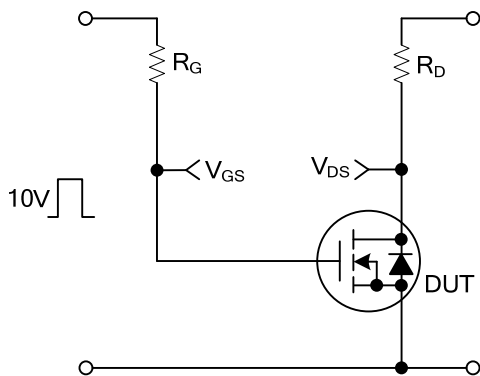


Peak Diode Recovery dv/dt Test Circuit

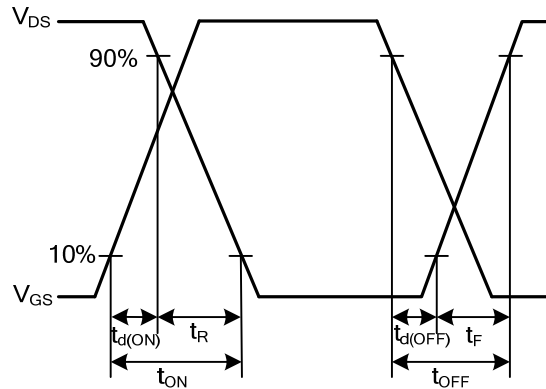


Peak Diode Recovery dv/dt Waveforms

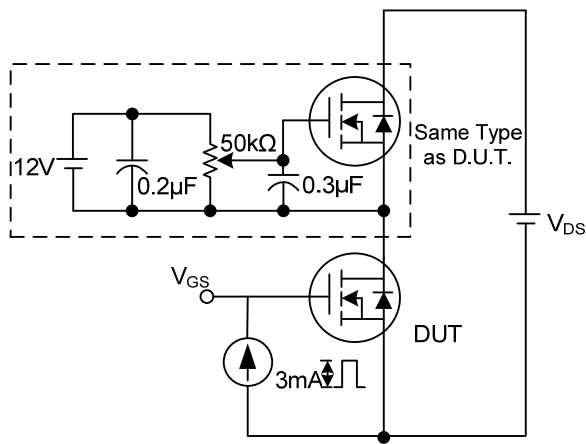
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



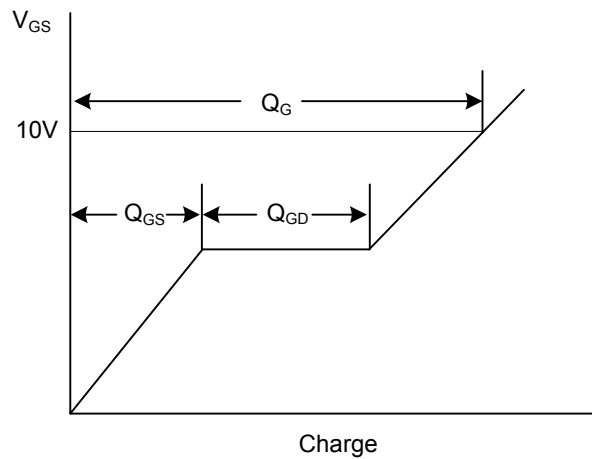
Switching Test Circuit



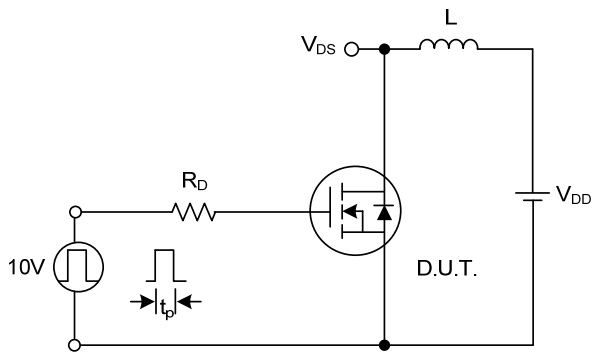
Switching Waveforms



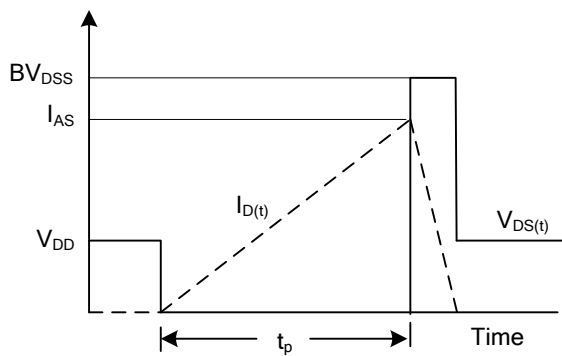
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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