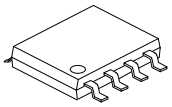
9A, 30V, N-CHANNEL MOSFET



SOP-8

■ 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 mΩ @ V_{GS}=4.5V, I_D=4.5A
* High switching speed

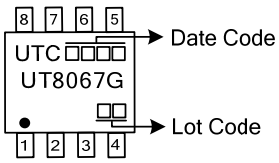
■ ORDERING INFORMATION

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

UT8067G-S08-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free

■ 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

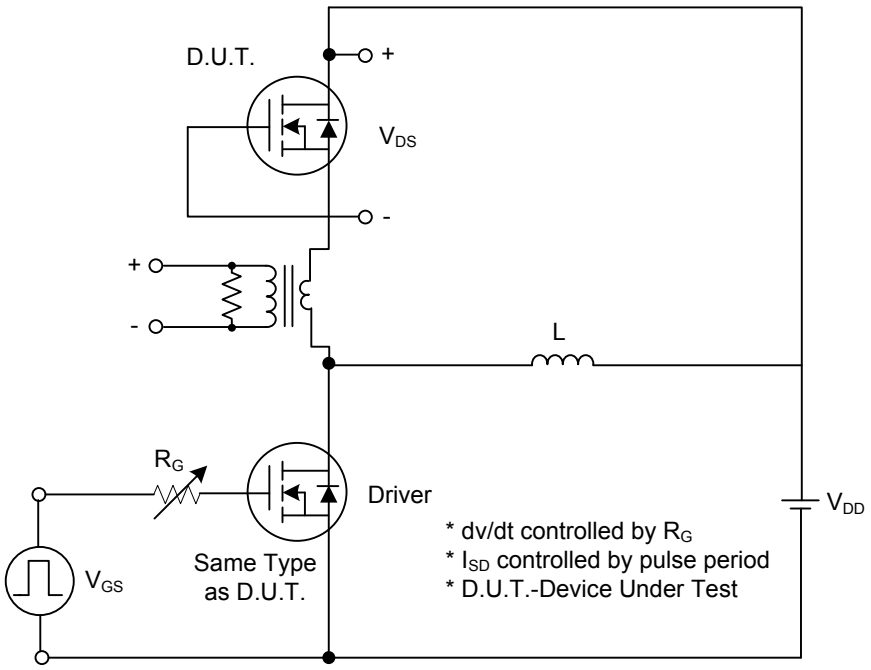
Note: Surface Mounted on 25.4 mmx25.4 mmx0.8mm FR4 Board.

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

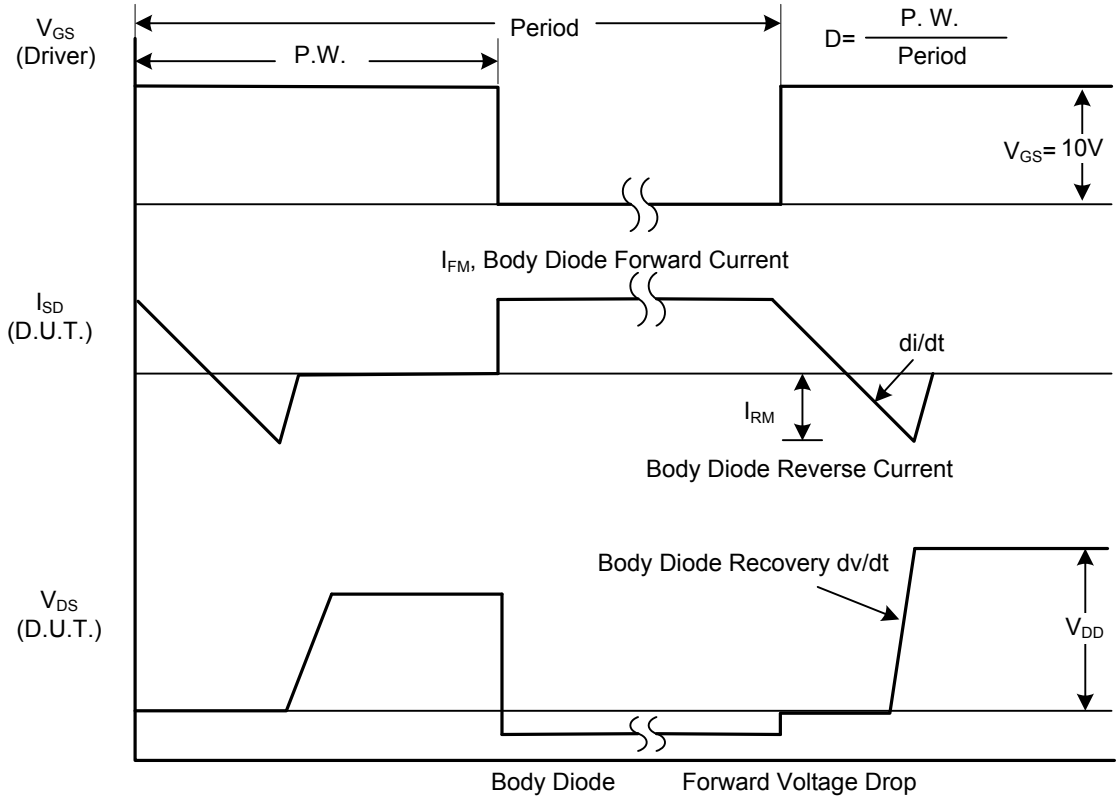
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=10mA, V_{GS}=0V	30			V
		BV_{DSX}	I_D=10mA, V_{GS}=-20V	15			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=30V, V_{GS}=0V			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+0.1	μA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-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

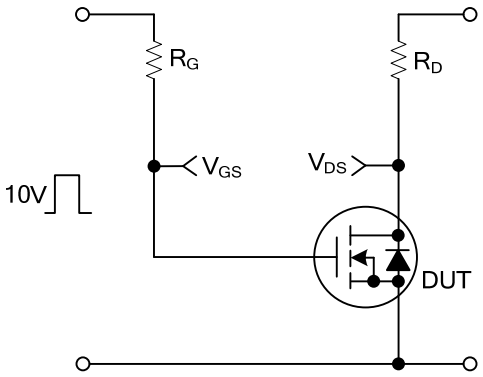


Peak Diode Recovery dv/dt Test Circuit

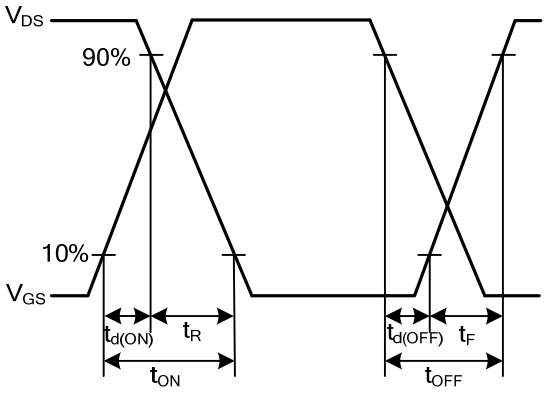


Peak Diode Recovery dv/dt Waveforms

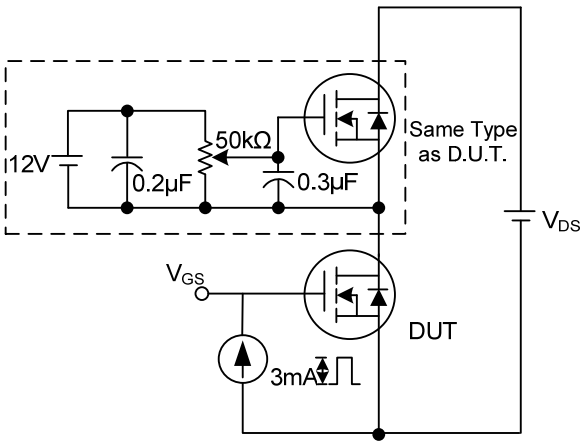
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



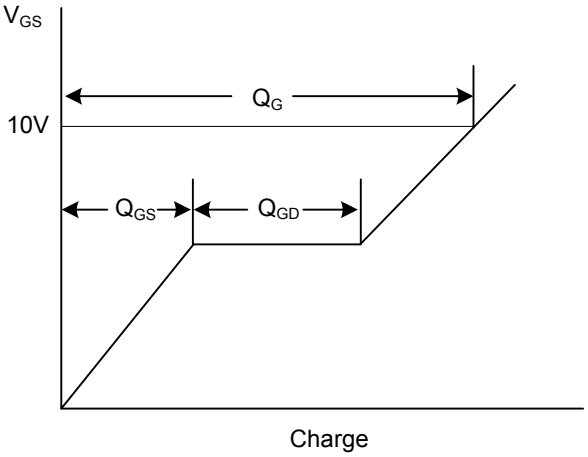
itching Test Circuit



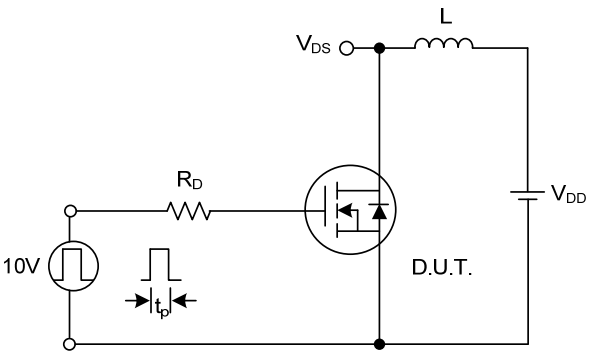
Switching Waveforms



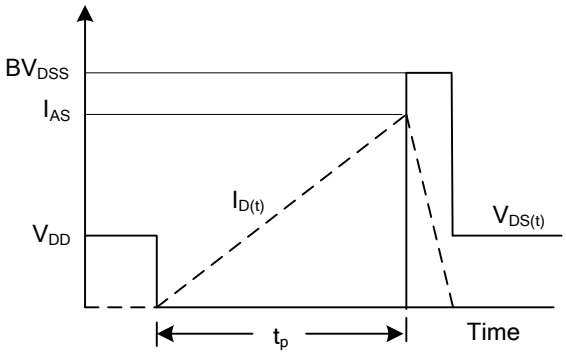
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms