



UTT6675

Power MOSFET

-11A, -30V P-CHANNEL POWER MOSFET

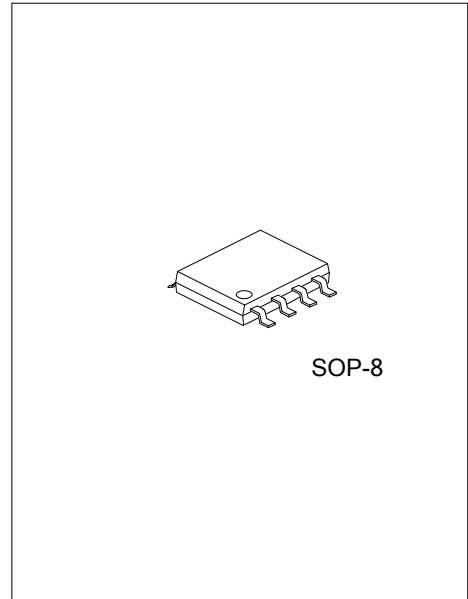
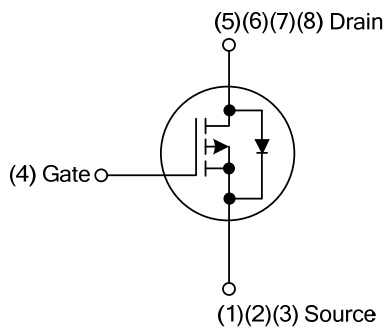
DESCRIPTION

The UTC **UTT6675** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance. It can also withstand high energy in the avalanche.

FEATURES

- * $R_{DS(ON)} < 15\text{ m}\Omega$ @ $V_{GS} = -10\text{V}$, $I_D = -11\text{A}$
- * $R_{DS(ON)} < 23\text{ m}\Omega$ @ $V_{GS} = -4.5\text{V}$, $I_D = -9.0\text{A}$
- * Improved dv/dt capability
- * Fast switching
- * Green device available

SYMBOL



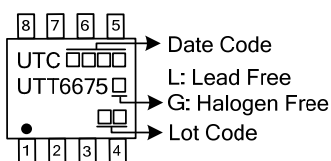
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing		
Lead Free	Halogen Free		1	2	3	4	5	6		7	8
UTT6675L-S08-R	UTT6675G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTT6675G-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_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	-30	V
Gate-Source Voltage		V _{GSS}	±20	V
Continuous Drain Current	Continuous	I _D	-11	A
Pulsed Drain Current	Pulsed (Note 2)	I _{DM}	-50	A
Avalanche Energy, Single Pulsed (Note 3)		E _{AS}	91	mJ
Peak Diode Recovery dv/dt (Note4)		dv/dt	4.5	V/ns
Power Dissipation		P _D	2.5	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=1.5mH, I_{AS}=-11A, V_{DD}=-25V, R_G=25 Ω, Starting T_J=25°C

4. I_{SD} ≤ -11A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J=25°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	50	°C/W
Junction to Case	θ _{JC}	25	°C/W

Note: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

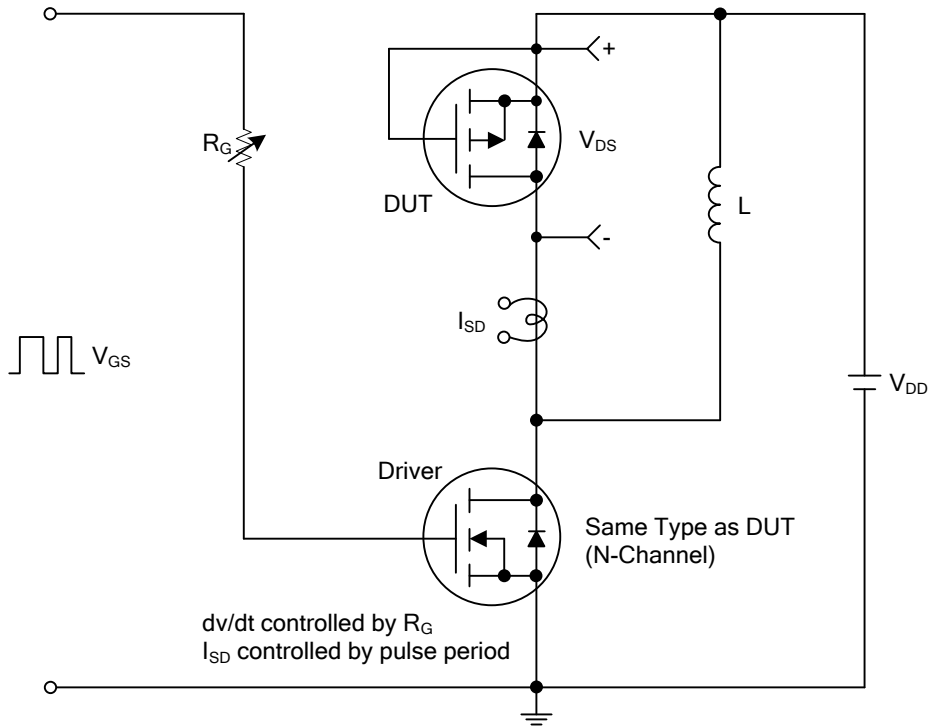
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30			V	
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA	
Gate-Source Leakage Current	I _{GSS}	Forward			+100	nA	
		Reverse			-100	nA	
ON CHARACTERISTICS							
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0		-3.0	V	
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-11A			15	mΩ	
		V _{GS} =-4.5V, I _D =-9.0A			23	mΩ	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{DS} =-15V, V _{GS} =0V, f=1.0MHz		1620		pF	
Output Capacitance	C _{OSS}			300		pF	
Reverse Transfer Capacitance	C _{RSS}			200		pF	
SWITCHING PARAMETERS							
Total Gate Charge (Note 1)	Q _G	V _{DS} =-15V, V _{GS} =-5V, I _D =-11A I _G =-1mA (Note 1, 2)		18.4		nC	
Gate to Source Charge	Q _{GS}			5.4		nC	
Gate to Drain Charge	Q _{GD}			7		nC	
Turn-on Delay Time (Note 1)	t _{D(ON)}	V _{DD} =-15V, V _{GS} =-10V, I _D =-1A, R _G =6Ω (Note 1, 2)		7		ns	
Rise Time	t _R			15		ns	
Turn-off Delay Time	t _{D(OFF)}			88		ns	
Fall-Time	t _F			56		ns	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Pulsed Current	I _S	I _S = -11A, V _{GS} =0V			-11	A	
Drain-Source Diode Forward Voltage (Note 1)	I _{SM}				-50	A	
Maximum Body-Diode Continuous Current	V _{SD}				-1.2	V	
Reverse Recovery Time	t _{rr}		V _{GS} =0V, I _S =-11A		160		nS
Reverse Recovery Charge	Q _{rr}		di/dt=100A/μs		270		nC

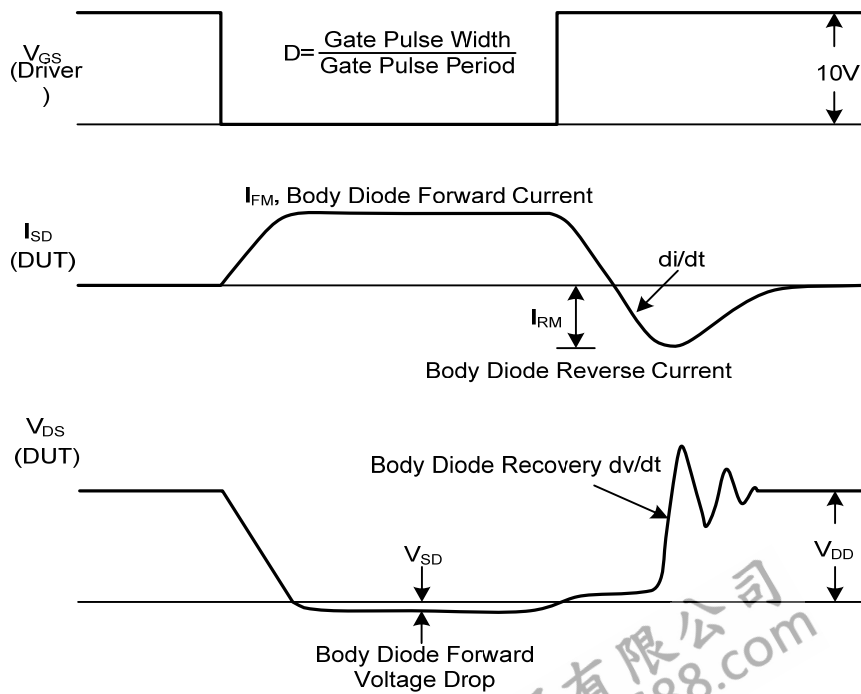
Note: 1. Pulse Test : Pulse width ≤ -300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

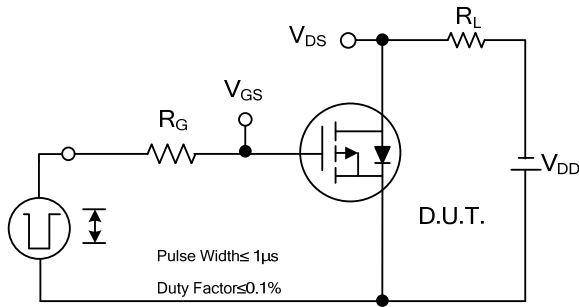


Peak Diode Recovery dv/dt Test Circuit

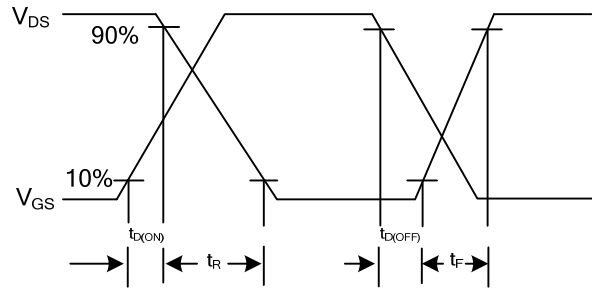


Peak Diode Recovery dv/dt Waveforms

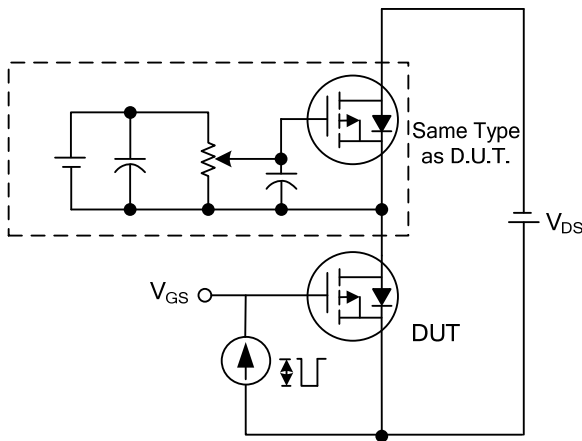
■ TEST CIRCUITS AND WAVEFORMS



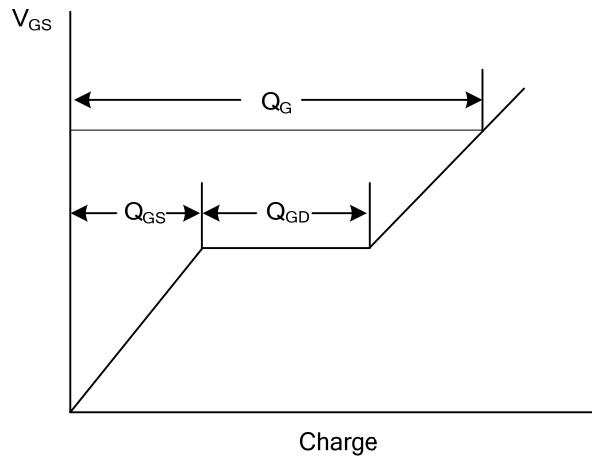
Switching Test Circuit



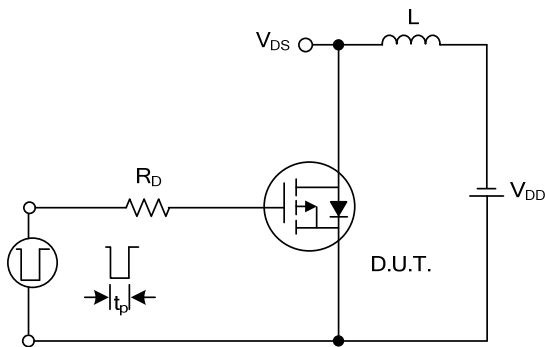
Switching Waveforms



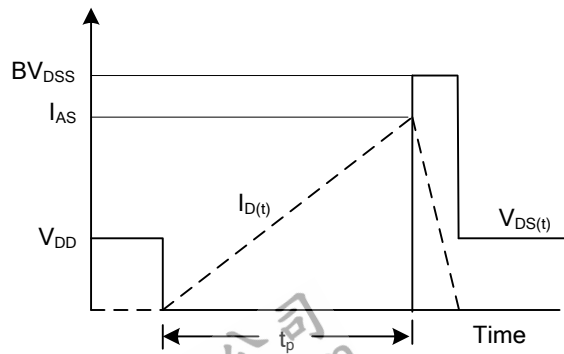
Gate Charge Test Circuit



Gate Charge Waveform

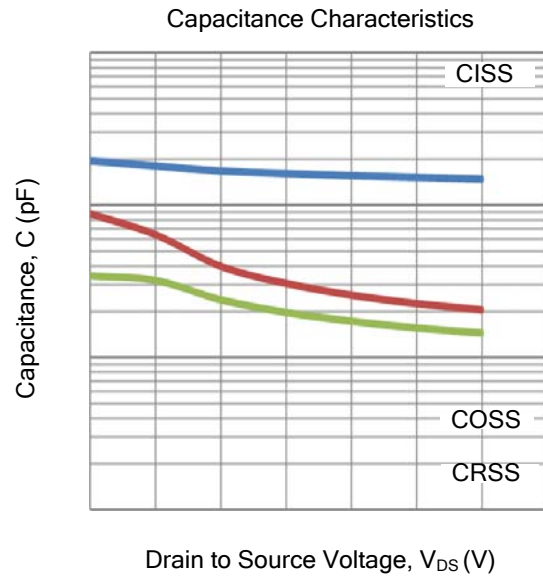
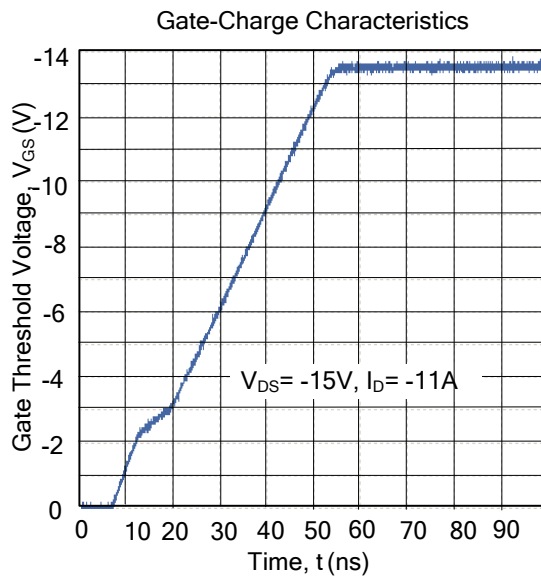


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

TYPICAL CHARACTERISTICS



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