



## UT6268H

Preliminary

Power MOSFET

### 28A, 60V N-CHANNEL POWER MOSFET

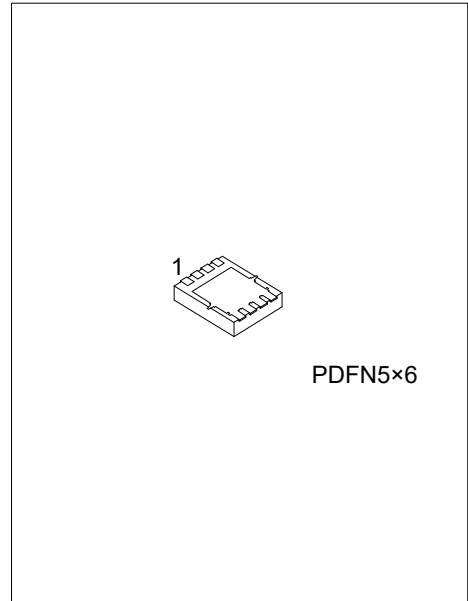
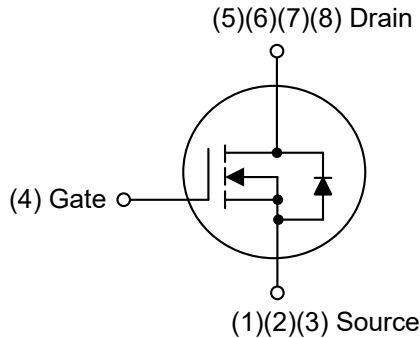
#### DESCRIPTION

The UTC **UT6268H** uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with low gate voltages. This device is suitable for use as a load switch, in PWM applications, converters and power supplies.

#### FEATURES

- \*  $R_{DS(ON)} \leq 4.5 \text{ m}\Omega @ V_{GS}=10 \text{ V}, I_D=14\text{A}$
- \* Low Capacitance
- \* Low Gate Charge
- \* Fast Switching Capability
- \* Avalanche Energy Specified

#### SYMBOL



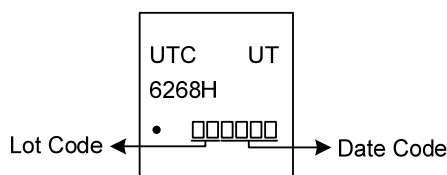
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing		
Lead Free	Halogen Free		1	2	3	4	5	6		7	8
UT6268HL-P5060-R	UT6268HG-P5060-R	PDFN5x6	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT6268HG-P5060-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) P5060: PDFN5x6</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	--

#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_C=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	60	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	28	A
	Pulsed	$I_{DM}$	84	A
Avalanche Energy	Single Pulsed	$E_{AS}$	291	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	1.7	V/ns
Power Dissipation		$P_D$	45	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.  $L = 0.1\text{mH}$ ,  $I_{AS} = 76.4\text{A}$ ,  $V_{DD} = 50\text{V}$ ,  $R_G = 25\Omega$ , Starting  $T_J = 25^{\circ}\text{C}$   
 4.  $I_{SD} \leq 28\text{A}$ ,  $di/dt \leq 200\text{A}/\mu\text{s}$ ,  $V_{DD} \leq BV_{DSS}$ , Starting  $T_J = 25^{\circ}\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	65	$^{\circ}\text{C}/\text{W}$
Junction to Case	$\theta_{JC}$	2.77	$^{\circ}\text{C}/\text{W}$

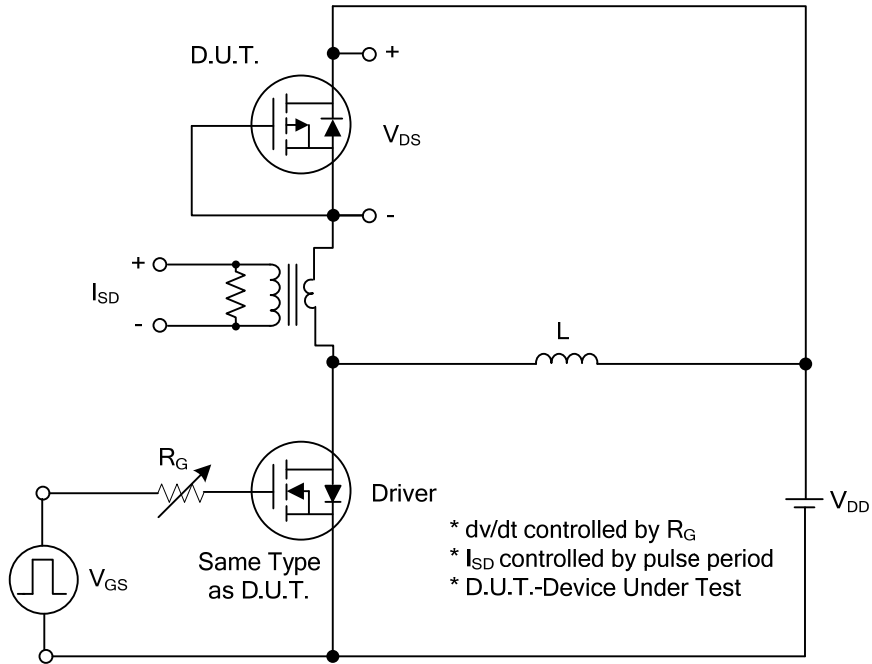
Note: Device mounted on FR4 substrate  $P_C$  board, 2oz copper, with 1inch square copper plate.

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

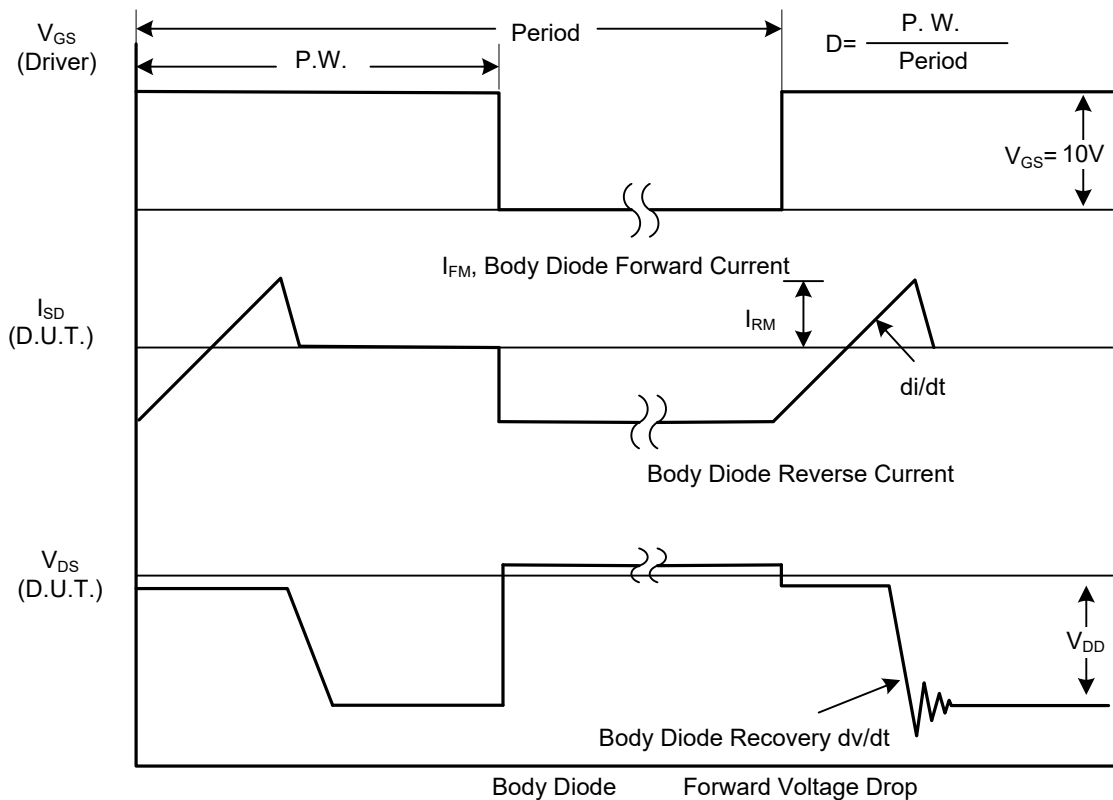
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu\text{A}$ , $V_{GS}=0\text{V}$	60			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=60\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	Forward $V_{GS}=+20\text{V}$ , $V_{DS}=0\text{V}$			+100	nA
		Reverse $V_{GS}=-20\text{V}$ , $V_{DS}=0\text{V}$			-100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=1.0\text{mA}$	2.0		4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$ , $I_D=14\text{A}$			4.5	m $\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS}=25\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$		6379		pF
Output Capacitance	$C_{OSS}$			567		pF
Reverse Transfer Capacitance	$C_{RSS}$			419		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	$Q_G$	$V_{DS}=48\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=28\text{A}$ (Note 1, 2)		129		nC
Gate to Source Charge	$Q_{GS}$			26		nC
Gate to Drain Charge	$Q_{GD}$			48		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=28\text{A}$ , $R_G=25\Omega$ (Note 1, 2)		84		ns
Rise Time	$t_R$			63		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			282		ns
Fall Time	$t_F$			169		ns
<b>SOURCE DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body Diode Continuous Current	$I_S$				28	A
Maximum Body Diode Pulsed Current	$I_{SM}$				84	A
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=28\text{A}$ , $V_{GS}=0\text{V}$			1.4	V
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0\text{V}$ , $I_S=28\text{A}$		64		ns
Reverse Recovery Charge (Note 1)	$Q_{rr}$	$dI_S/dt=100\text{A}/\mu\text{s}$		69		nC

- Notes: 1. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$ .  
 2. Essentially independent of operating ambient temperature.

■ TEST CIRCUITS AND WAVEFORMS

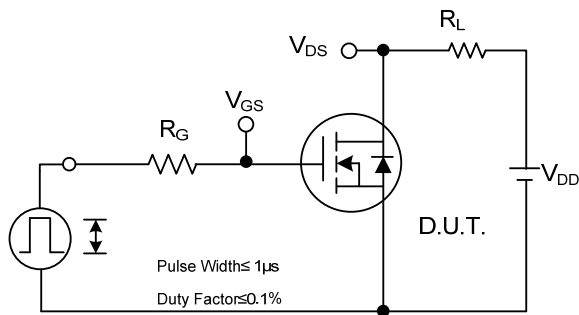


Peak Diode Recovery dv/dt Test Circuit

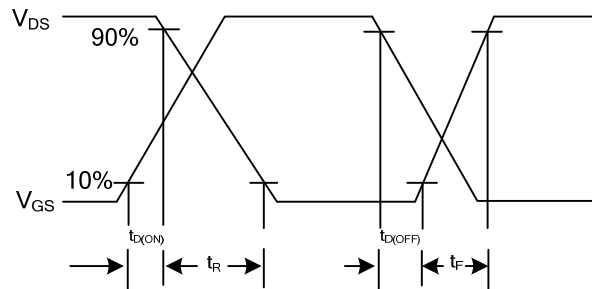


Peak Diode Recovery dv/dt Waveforms

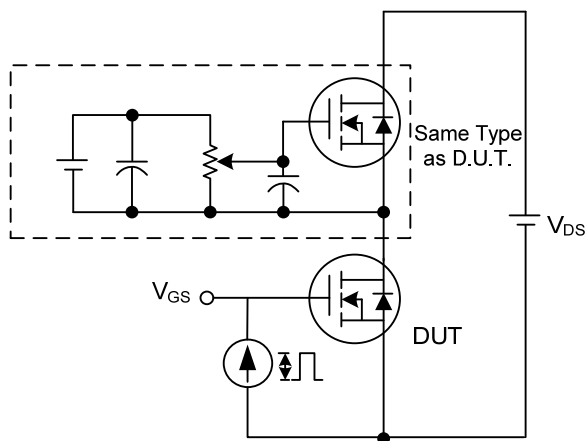
■ TEST CIRCUITS AND WAVEFORMS



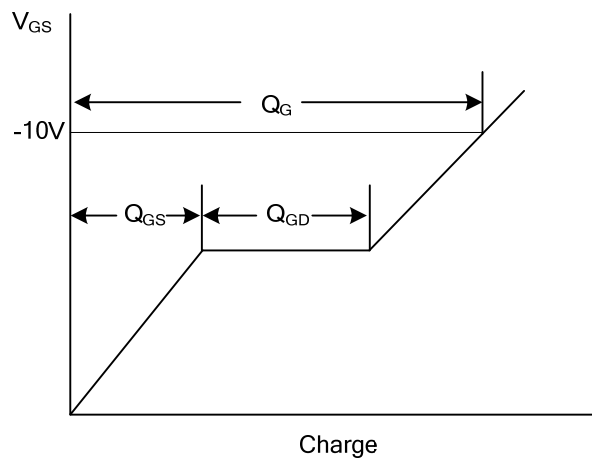
Switching Test Circuit



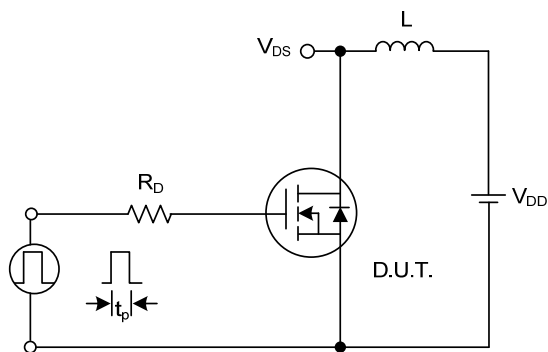
Switching Waveforms



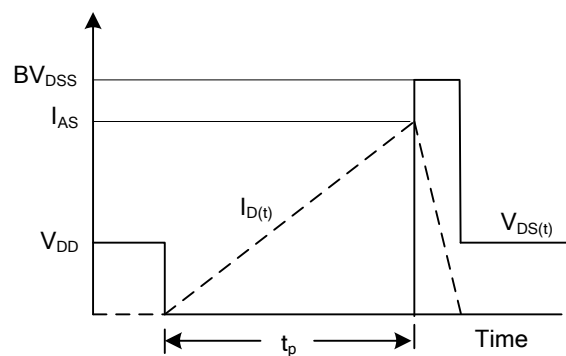
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.