



UD12N04Z

Advance

POWER MOSFET

6A, 40V DUAL N-CHANNEL ENHANCEMENT MODE TRENCH POWER MOSFET

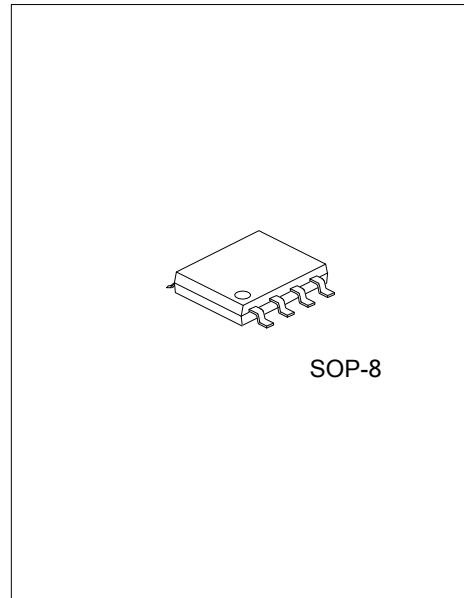
DESCRIPTION

The UTC **UD12N04Z** is a Dual N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with an extremely low on-state resistance and superior switching performance.

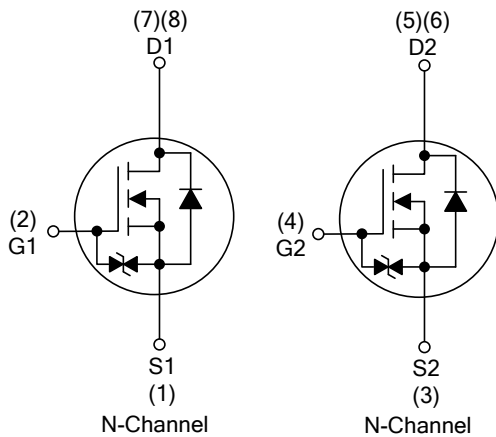
The UTC **UD12N04Z** is suitable for high frequency DC-DC converters with synchronous rectification applications.

FEATURES

- * $R_{DS(ON)} \leq 38 \text{ m}\Omega @ V_{GS}=10\text{V}, I_D=6.0\text{A}$
- * $R_{DS(ON)} \leq 50 \text{ m}\Omega @ V_{GS}=4.5\text{V}, I_D=6.0\text{A}$
- * High Power and Current Handling Capability
- * High Cell Density Trench Technology



SYMBOL



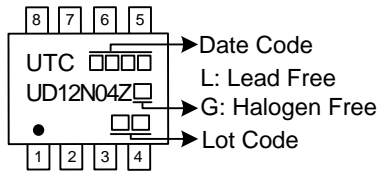
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UD12N04ZL-S08-R	UD12N04ZG-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

UD12N04ZG-S08-R	(1) Packing Type	(1) R: Tape Reel
	(2) Package Type	(2) S08: SOP-8
	(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



FLYING 汎翔國際有限公司
www.flying1688.com

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	40	V
Gate-Source Voltage		V _{GSS}	±12	V
Continuous Drain Current	Continuous	I _D	6	A
Pulsed Drain Current	Pulsed (Note 2)	I _{DM}	12	A
Avalanche Current (Note 3)		I _{AS}	12	A
Avalanche energy	Single Pulsed (Note 3)	E _{AS}	1.08	mJ
Power Dissipation (Note 4)		P _D	1.47	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=10μH, I_{AS}=12A, V_{DD}=20V, R_G=25Ω, Starting T_J = 25°C.

4. Mounted on a ceramic board.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	85	°C/W

Note: Mounted on a ceramic board.

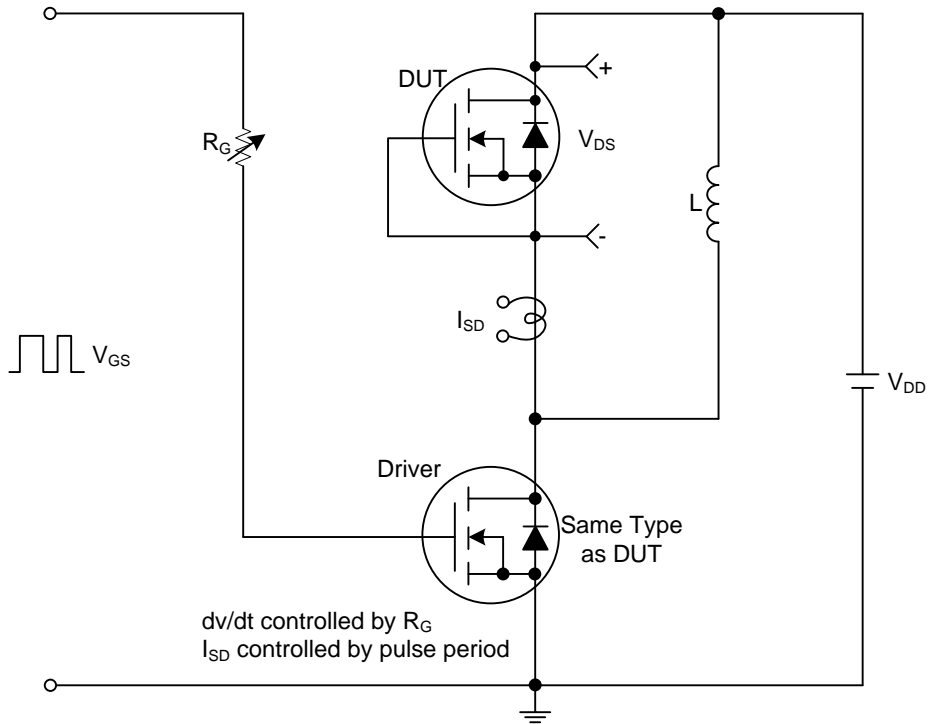
■ ELECTRICAL CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	40			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	Forward			+10	μA
		Reverse			-10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =6.0A			38	mΩ
		V _{GS} =4.5V, I _D =6.0A			50	mΩ
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				1.6	A
Maximum Body-Diode Pulsed Current	I _{SM}				12	A
Drain-Source Diode Forward Voltage (Note 1)	V _{SD}	I _S =6.0A, V _{GS} =0V			1.2	V

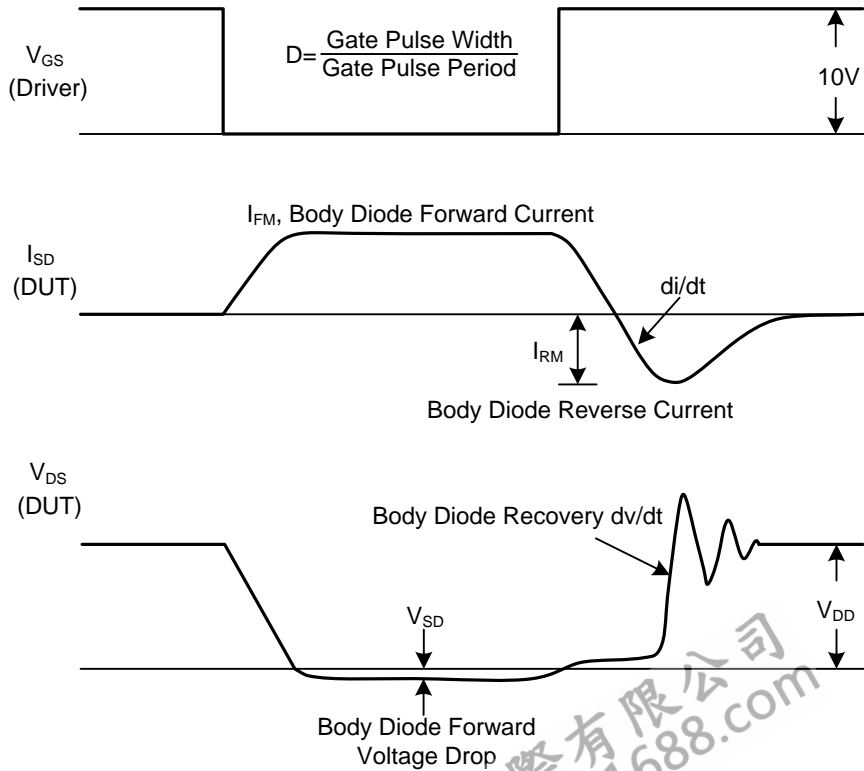
Notes: 1. Pulse Test: Pulse width ≤ 10μs, Duty cycle ≤ 1%.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS



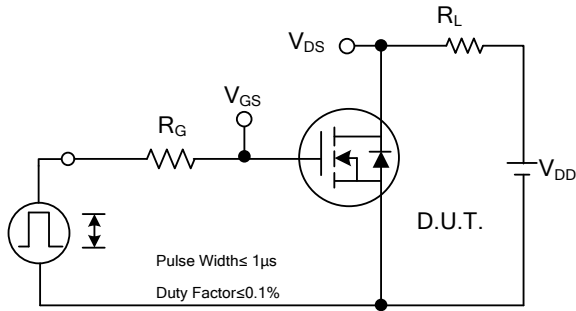
Peak Diode Recovery dv/dt Test Circuit



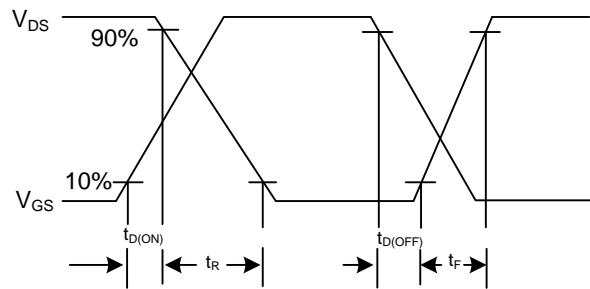
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

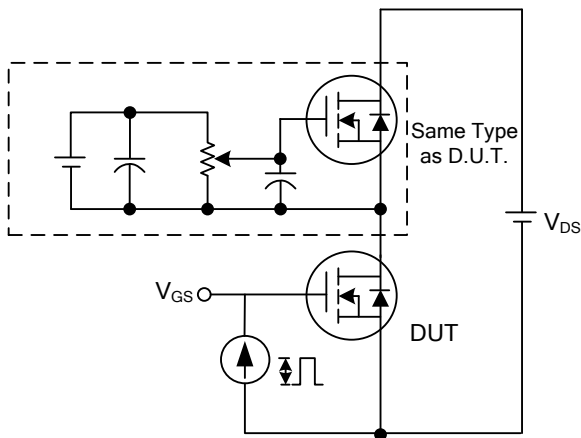
TEST CIRCUITS AND WAVEFORMS



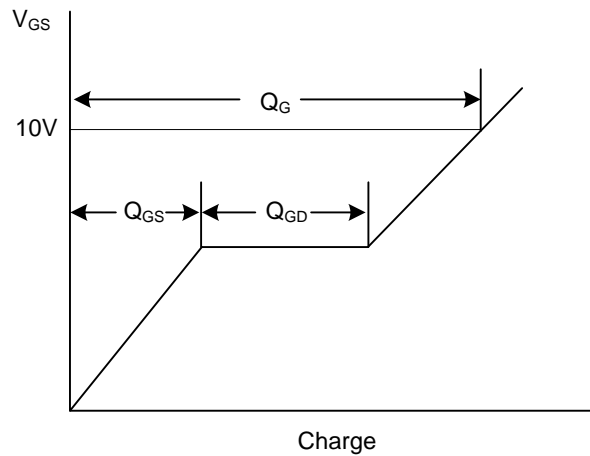
Switching Test Circuit



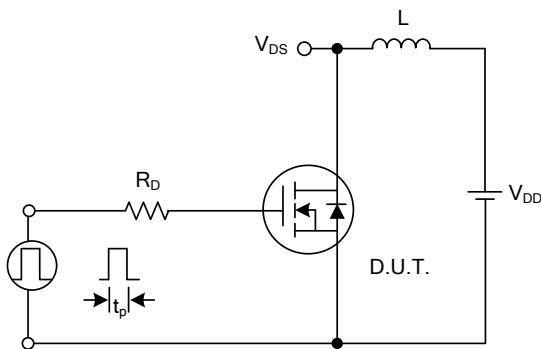
Switching Waveforms



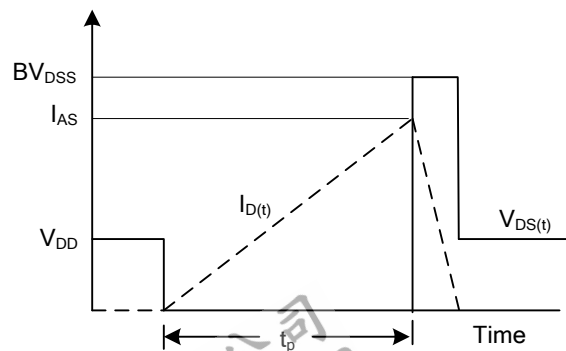
Gate Charge Test Circuit



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.