



UTT30N08

Preliminary

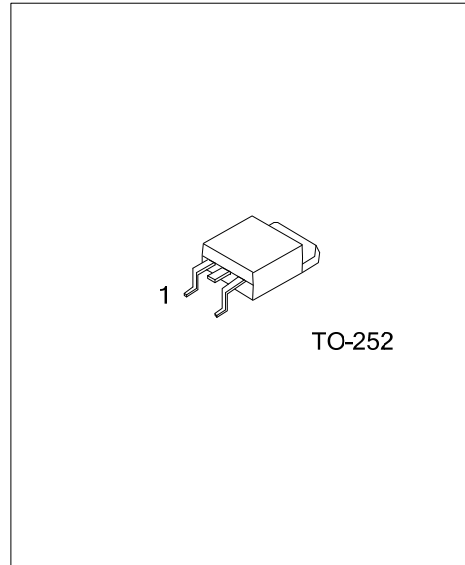
Power MOSFET

**80V, 30A N-CHANNEL
POWER MOSFET**

■ DESCRIPTION

The UTC **UTT30N08** is an N-channel mode power MOSFET using UTC's advanced technology to provide customers with planar stripe and DMOS technology. This technology allows a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

The UTC **UTT30N08** is generally applied in high efficiency switch mode power supplies.

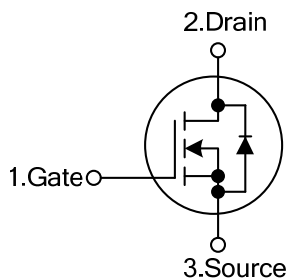


■ FEATURES

* $R_{DS(ON)} < 40m\Omega @ V_{GS}=10V, I_D=30A$

* High Switching Speed

■ SYMBOL



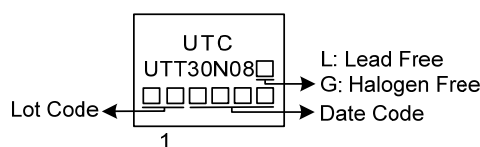
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT30N08L-TN3-R	UTT30N08G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT30N08G-TN3-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified) (Note 4)

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain to Source Voltage		V _{DSS}	80	V	
Gate-Source Voltage		V _{GSS}	±20	V	
Drain Current (Note 5)	Continuous	I _D	T _C =25°C	30	A
			T _C =100°C	18	A
Pulsed (Note 2)		I _{DM}	90	A	
Avalanche Energy	Single Pulsed (Note 3)	E _{AS}	138	mJ	
Power Dissipation (T _C =25°C)		P _D	54	W	
Junction Temperature		T _J	+150	°C	
Storage Temperature		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=4mH, I_{AS}=8.3A, V_{DD}=50V, R_G=25Ω, Starting T_J=25°C

4. Drain current limited by maximum junction temperature

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	110	°C/W
Junction to Case	θ _{JC}	2.3	°C/W

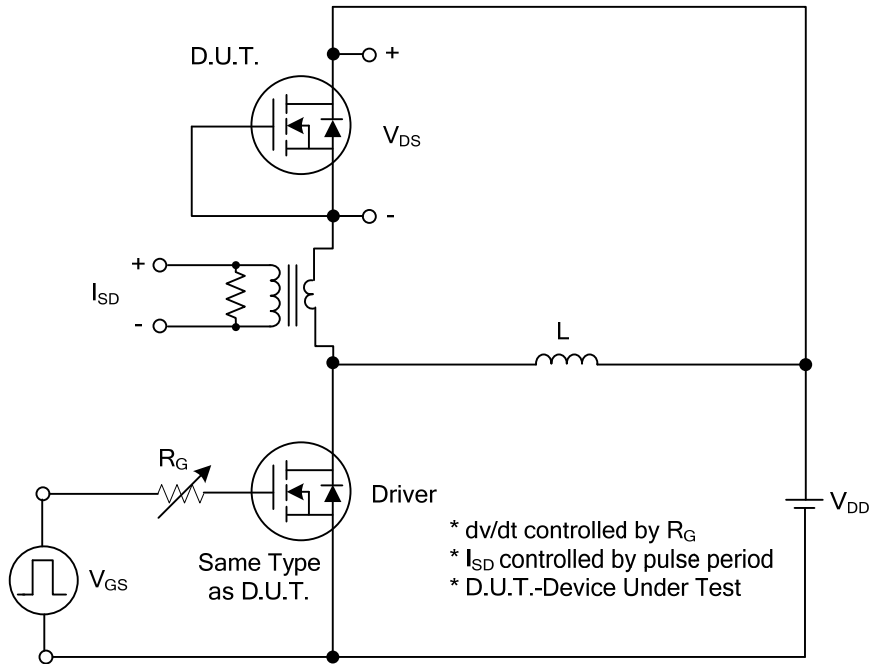
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V, T _J =150°C	80			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V,			1	μA
Gate- Source Leakage Current	I _{GSS}	Forward			+100	nA
		Reverse	V _{GS} =+20V, V _{DS} =0V			-100
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	1.0		3.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A			40	mΩ
		V _{GS} =4.5V, I _D =15A			50	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25, V _{GS} =0V, f=1.0MHz		1810		pF
Output Capacitance	C _{OSS}			160		pF
Reverse Transfer Capacitance	C _{RSS}			140		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =60V, V _{GS} =10V, I _D =30A (Note 1, 2)		61		nC
Gate to Source Charge	Q _{GS}			12		nC
Gate to Drain ("Miller") Charge	Q _{GD}			16		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =30V, I _D =15A, R _G =4.7Ω (Note 1, 2)		16		ns
Rise Time	t _R			18		ns
Turn-OFF Delay Time	t _{D(OFF)}			50		ns
Fall-Time	t _F			25		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				30	A
Maximum Body-Diode Pulsed Current	I _{SM}				120	A
Drain-Source Diode Forward Voltage	V _{SD}	I _{SD} =30A, V _{GS} =0V			1.4	V

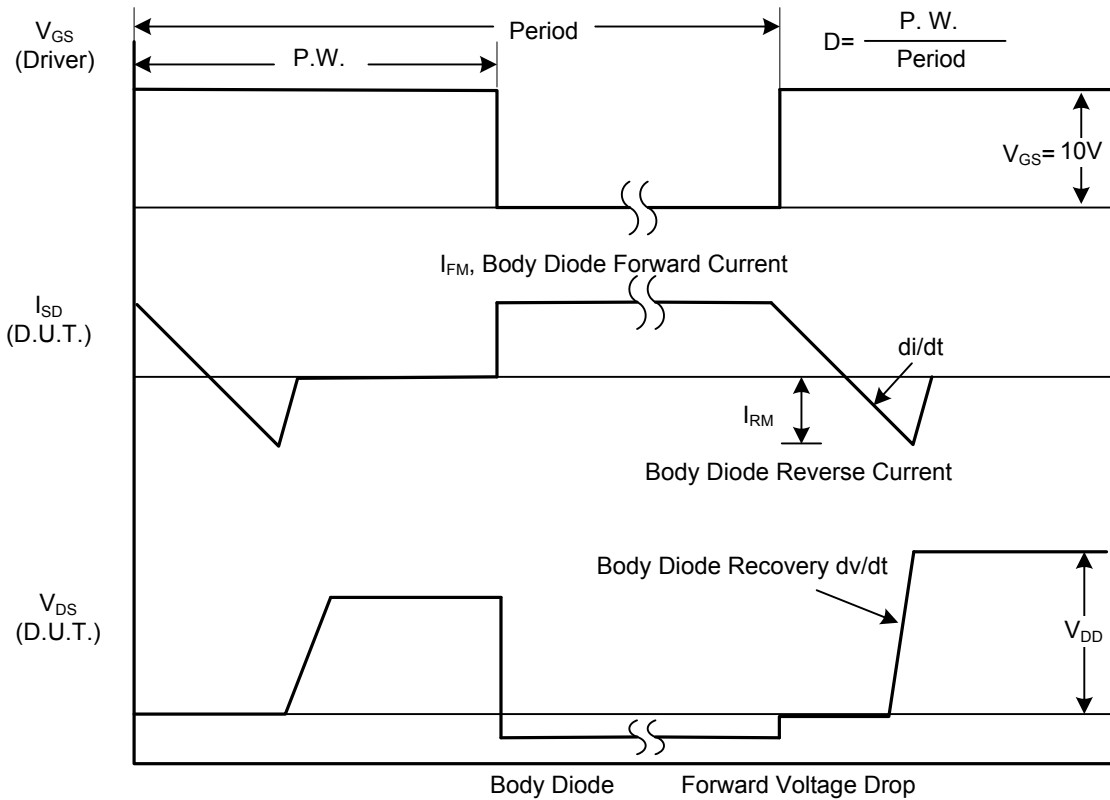
Notes: 1. Pulse Test: Pulse width≤300μs; Duty Cycle≤2%.

2. Essentially Independent of Operating Temperature Typical Characteristics

■ TEST CIRCUITS AND WAVEFORMS

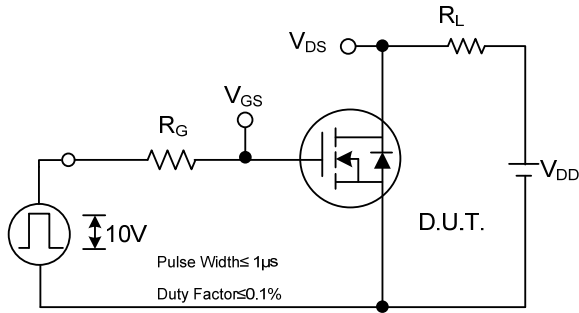


Peak Diode Recovery dv/dt Test Circuit

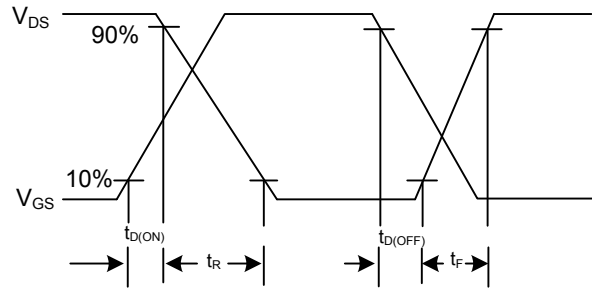


Peak Diode Recovery dv/dt Waveforms

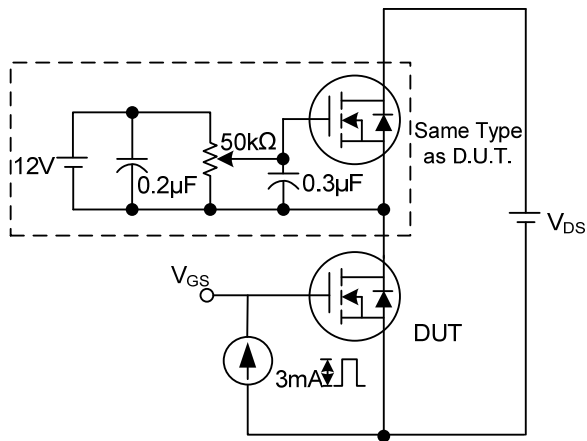
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



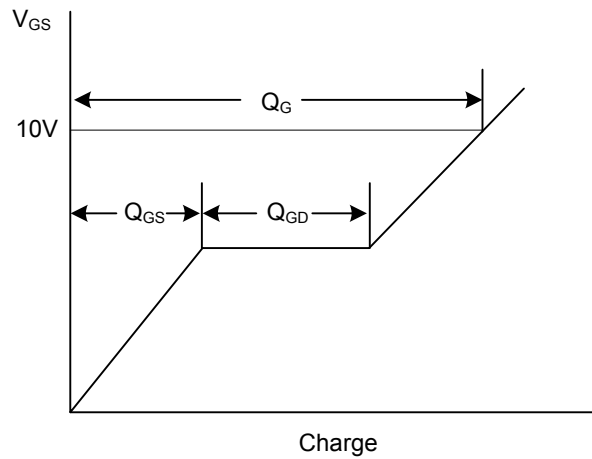
Switching Test Circuit



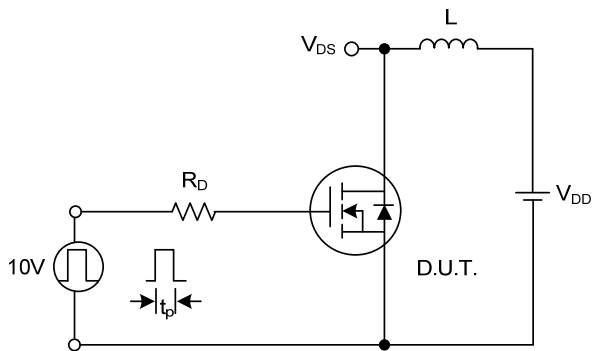
Switching Waveforms



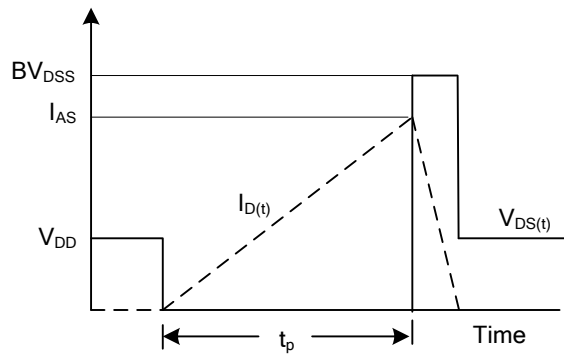
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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