



UTN6266-L

Preliminary

Power MOSFET

30A, 60V N-CHANNEL TRENCH MOSFET

■ DESCRIPTION

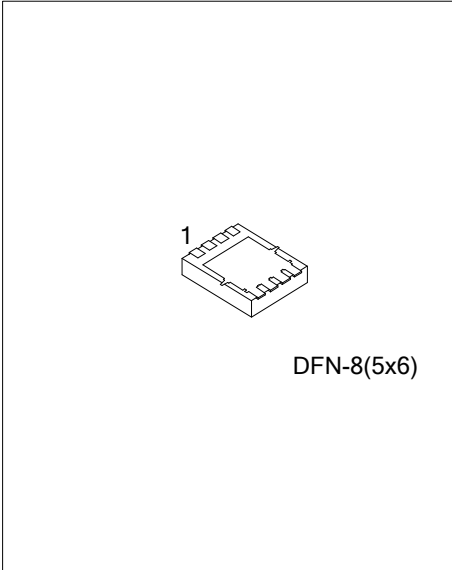
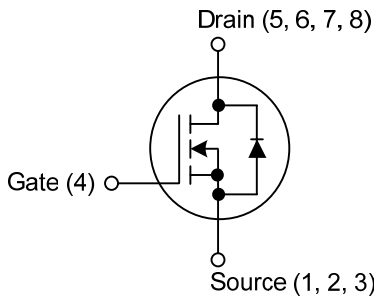
The UTC **UTN6266-L** is an N-Channel trench mosfet, it uses UTC's advanced technology to provide customers with a minimum on-state resistance, high switching speed and low gate charge.

The UTC **UTN6266-L** is suitable for Synchronous Rectification in DC/DC and AC/DC Converters and industrial and Motor Drive applications.

■ FEATURES

- * $R_{DS(ON)} < 15m\Omega$ @ $V_{GS}=10V, I_D=20A$
- $R_{DS(ON)} < 19m\Omega$ @ $V_{GS}=4.5V, I_D=18A$
- * Low gate charge
- * Low $R_{DS(ON)}$
- * High switching speed

■ SYMBOL



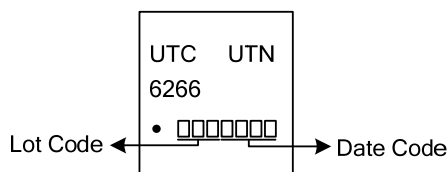
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTN6266L-K08-5060-R	UTN6266G-K08-5060-R	DFN-8(5x6)	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTN6266G-K08-5060-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) K08-5060: DFN-8(5x6)</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}	± 20	V
Drain Current	Continuous	I_D	30
	Pulsed	I_{DM}	90
Avalanche Current (Note 3)	I_{AS}	20	A
Avalanche Energy (Note 2, 3)	E_{AS}	280	mJ
Power Dissipation	P_D	1.92	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. Single pulse width by junction temperature $T_{J(max)}=150^\circ\text{C}$.

3. $L = 1.4\text{mH}$, $I_{AS} = 20\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\ \Omega$, Starting $T_J = 25^\circ\text{C}$

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	65	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	12	$^\circ\text{C/W}$

Notes: 1. The θ_{JA} is the sum of the thermal impedance from junction to case θ_{JC} and case to ambient.

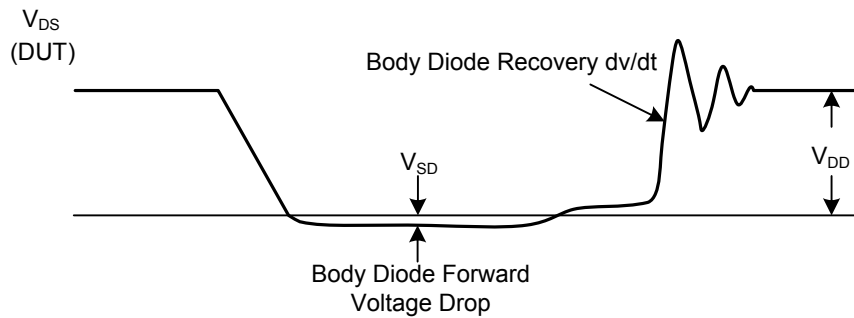
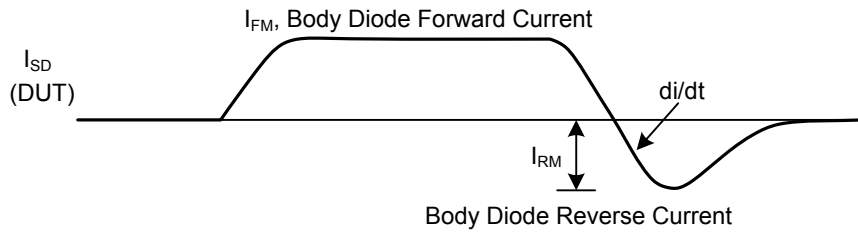
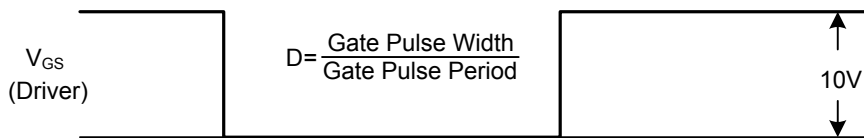
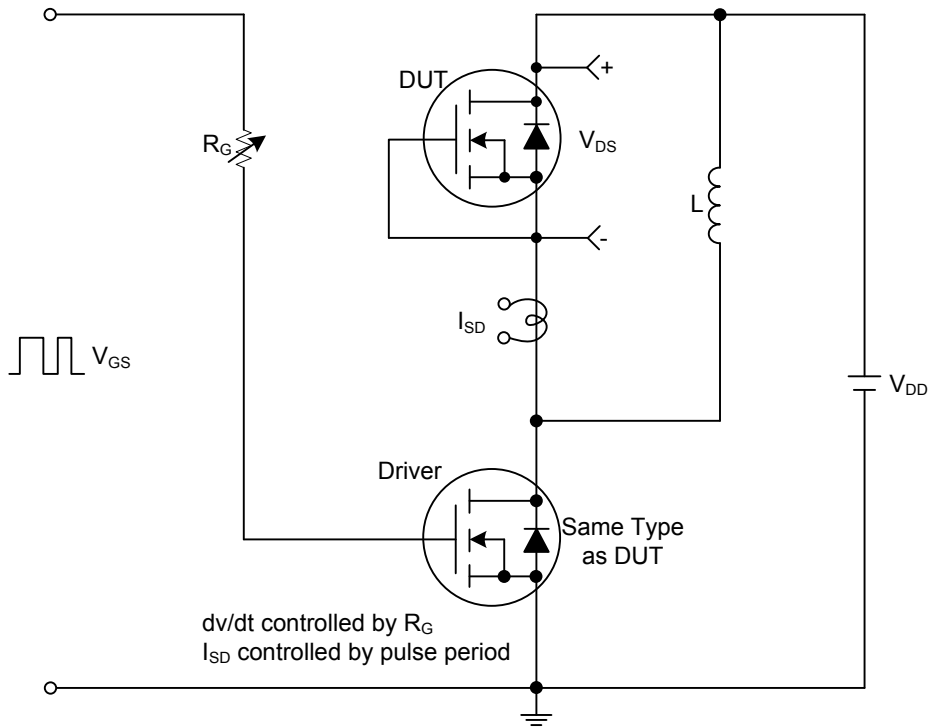
2. The value of θ_{JA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
		$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$			5	μA
Gate-Body Leakage Current	Forward	I_{GSS}				nA
	Reverse					
						-100
		$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$				nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1.0		2.5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=20\text{A}$		12	15	$\text{m}\Omega$
		$V_{GS}=10\text{V}$, $I_D=20\text{A}$, $T_J=125^\circ\text{C}$		20.5	25	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=18\text{A}$		15	19	$\text{m}\Omega$
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=30\text{V}$, $f=1.0\text{MHz}$		390		pF
Output Capacitance	C_{OSS}			190		pF
Reverse Transfer Capacitance	C_{RSS}			170		pF
Gate Resistance	R_G	$f=1.0\text{MHz}$		1.1		Ω
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10\text{V}$, $V_{DS}=30\text{V}$, $I_D=20\text{A}$		6		nC
Gate to Source Charge	Q_{GS}			0.5		nC
Gate to Drain Charge	Q_{GD}			0.5		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10\text{V}$, $V_{DS}=30\text{V}$, $R_L=1.5\Omega$, $R_{GEN}=3\Omega$		60		ns
Rise Time	t_R			75		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			500		ns
Fall-Time	t_F			230		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				30	A
Drain-Source Diode Forward Voltage (Note2)	V_{SD}	$I_S=1\text{A}$, $V_{GS}=0\text{V}$	0.72	1		V

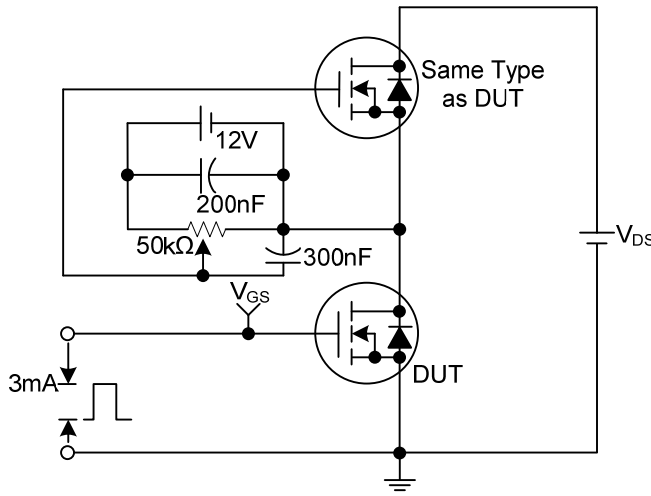
- Notes: 1. Pulse width limited by $T_{J(MAX)}$
 2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
 3. Surface Mounted on 1in^2 pad area.

■ TEST CIRCUITS AND WAVEFORMS

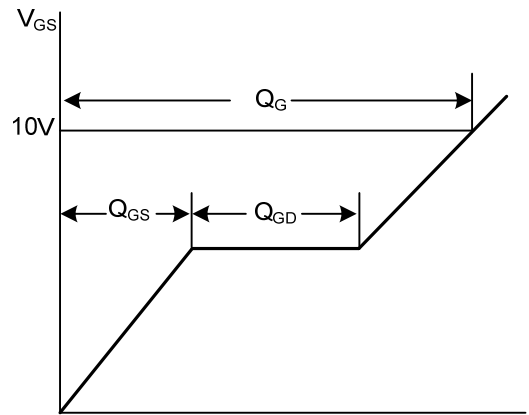


Peak Diode Recovery dv/dt Test Circuit and Waveforms

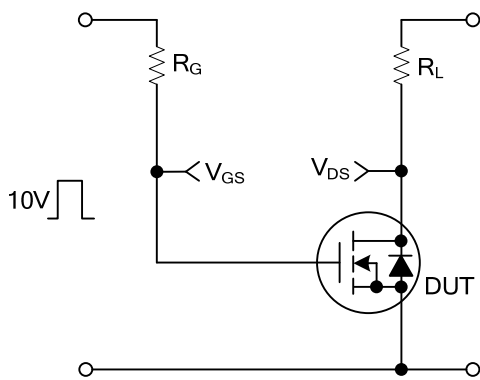
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



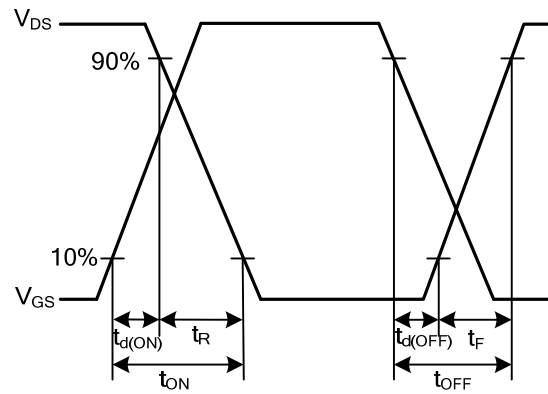
Gate Charge Test Circuit



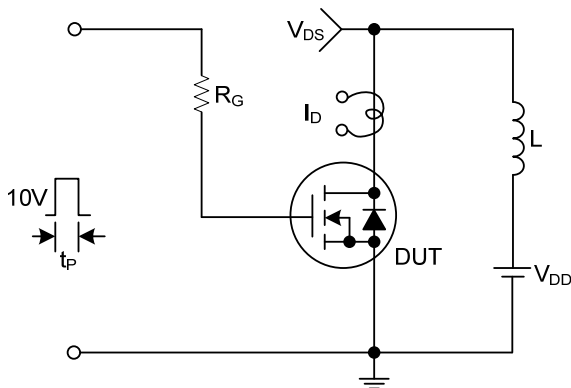
Gate Charge Waveforms



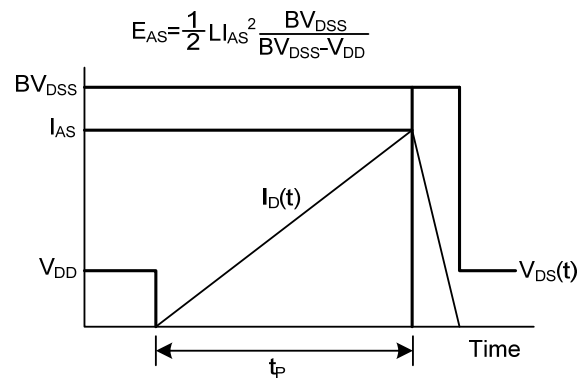
Resistive Switching Test Circuit



Resistive Switching Waveforms



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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.