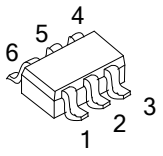
-1.4A, -150V P-CHANNEL (D-S) POWER MOSFET



SOT-26

■ DESCRIPTION

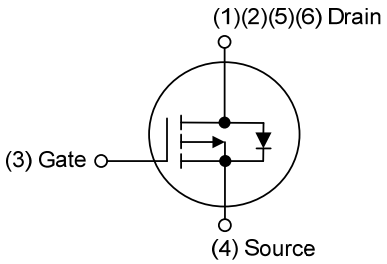
The UTC **UT3437** is a P-channel MOSFET, it uses UTC's advanced technology to provide the customers with low gate charge, etc.

The UTC **UT3437** is suitable for active clamp circuits in DC/DC power supplies.

■ FEATURES

* $R_{DS(ON)}$ < 0.75 Ω @ V_{GS}=-10V, I_D=-1.4A
  $R_{DS(ON)}$ < 0.79 Ω @ V_{GS}=-6V, I_D=-1A
* Low gate charge

■ SYMBOL



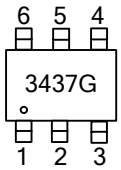
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
UT3437G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

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

UT3437G-AG6-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free

■ MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-150	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current (T_J=150°C)	T_C=25°C	I_D	-1.4	A
	T_C=70°C		-1.1	A
	T_A=25°C, t=5s	I_D	-1.1 (Note 1)	A
	T_A=70°C, t=5s		-0.88 (Note 1)	A
Pulsed Drain Current		I_{DM}	-5	A
Continuous Source-Drain Diode Current	T_C=25°C	I_S	-2.6	A
	T_A=25°C, t=5s		1.6 (Note 1)	A
Avalanche Current		I_{AS}	14	A
Single-Pulse Avalanche Energy		E_{AS}	10	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	3.27	V/ns
Maximum Power Dissipation		P_D	1.1	W
Junction Temperature		T_J	-55 ~ 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 T_J.
3. L=0.1mH, I_{AS}=14A, V_{DD}=50V, R_G=25Ω, Starting T_J = 25°C
4. I_{SD}≤2.0A, di/dt≤200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note 1, 2)	θ_{JA}	110	°C/W
Junction-to-Case	θ_{JC}	30	°C/W

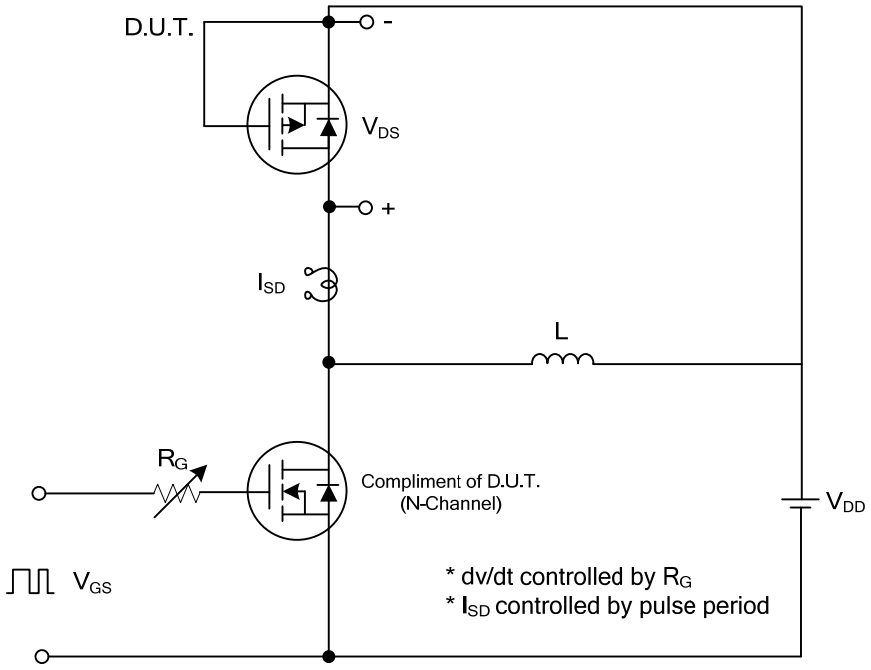
Notes: 1. Surface Mounted on 1" x 1" FR4 board.
2. Maximum under Steady State conditions is 110°C/W.

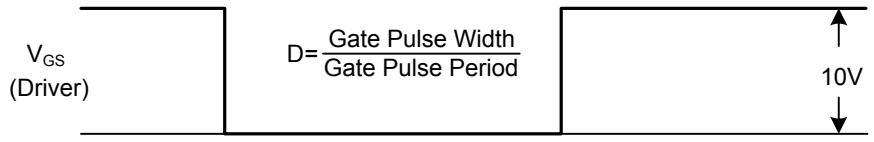
■ ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

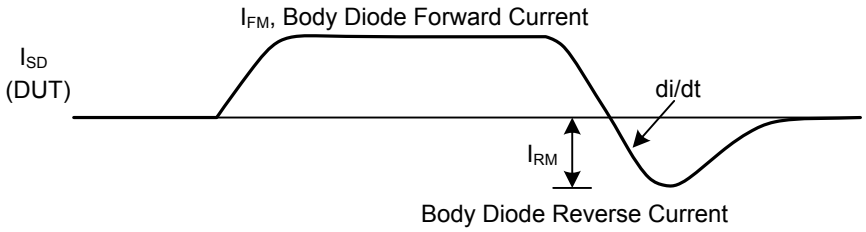
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA, V_{GS}=0V	-150			V
V_{DSS} Temperature Coefficient	$\Delta V_{DSS}/T_J$	I_D=-250μA		-160		mV/°C
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-150V, V_{GS}=0V			-1	μA
		V_{DS}=-150V, V_{GS}=0V, T_J=55°C			-10	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-2		-4	V
$V_{GS(TH)}$ Temperature Coefficient	$\Delta V_{GS(TH)}/T_J$	I_D=-250μA		5.5		mV/°C
On-State Drain Current (Note 1)	$I_{D(ON)}$	V_{DS}≥-10V, V_{GS}=-10V	-3			A
Drain-Source On-State Resistance (Note 1)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.4A			0.75	Ω
		V_{GS}=-6V, I_D=-1A			0.79	Ω
Forward Transconductance (Note 1)	g_{FS}	V_{DS}=-10V, I_D=-1.4A		4.5		S
DYNAMIC PARAMETERS (Note 2)						
Input Capacitance	C_{ISS}	V_{DS}=-25V,V_{GS}=0V, f=1MHz		500		pF
Output Capacitance	C_{OSS}			47		pF
Reverse Transfer Capacitance	C_{RSS}			23		pF
Gate Resistance	R_G	f=1MHz		8		Ω
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{GS}=-10V, V_{DS}=-50V, I_D=-1.3A, I_G=-100μA		32		nC
Gate to Source Charge	Q_{GS}			2.7		nC
Gate to Drain Charge	Q_{GD}			3.4		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{DS}=-75V, V_{GS}=-10V, I_D=-1.0A, R_G=1Ω		45		ns
Rise Time	t_R			40		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			100		ns
Fall-Time	t_F			45		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Source-Drain Diode Current	I_S	T_C=25°C			-1.4	A
Pulse Diode Forward Current	I_{SM}				-5	A
Body Diode Voltage	V_{SD}	I_S=-1A,V_{GS}=0V		-0.8	-1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=-1.2A, dI/dt=100A/μs, T_J=25°C		150		ns
Body Diode Reverse Recovery Charge	Q_{rr}			180		nC

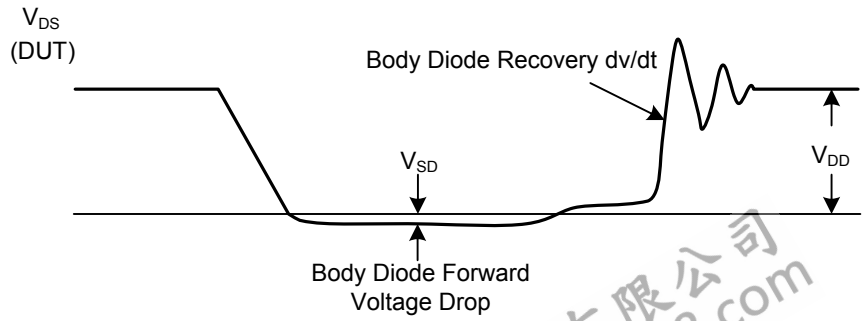
Notes: 1. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.

■ TEST CIRCUITS AND WAVEFORMS



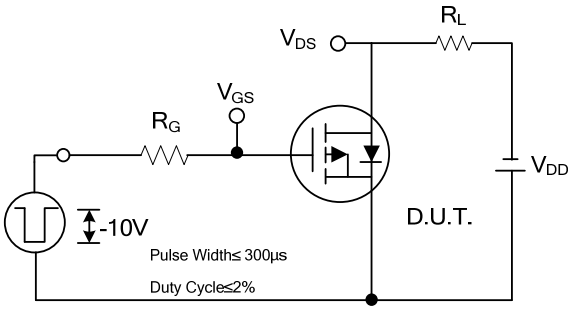




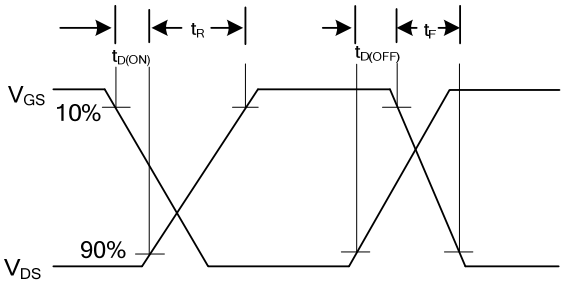


Peak Diode Recovery dv/dt Test Circuit and Waveforms

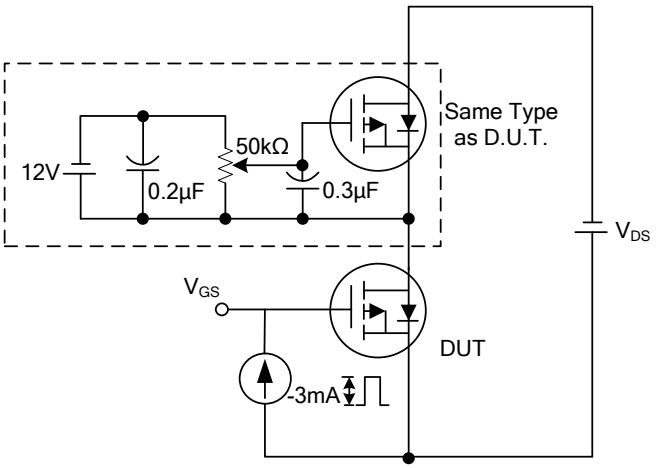
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



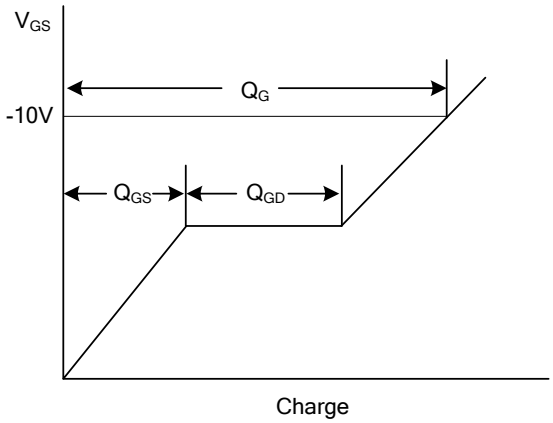
Switching Test Circuit



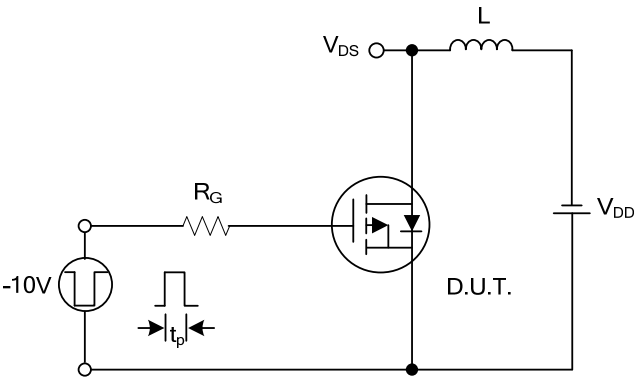
Switching Waveforms



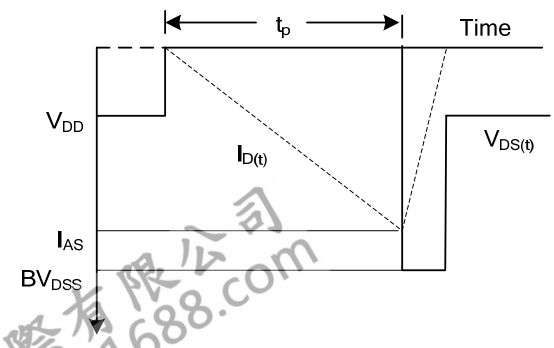
Gate Charge Test Circuit



Gate Charge Waveform



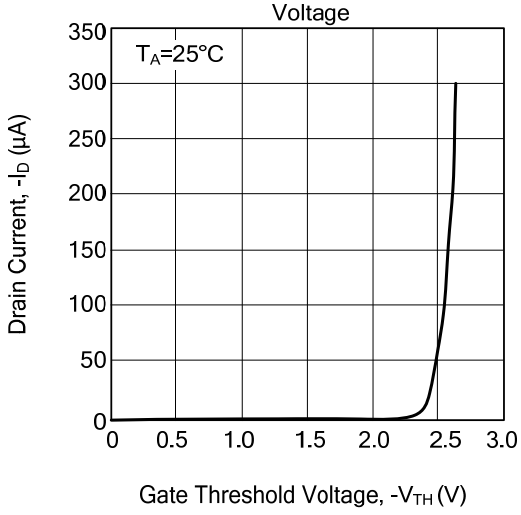
Unclamped Inductive Switching Test Circuit



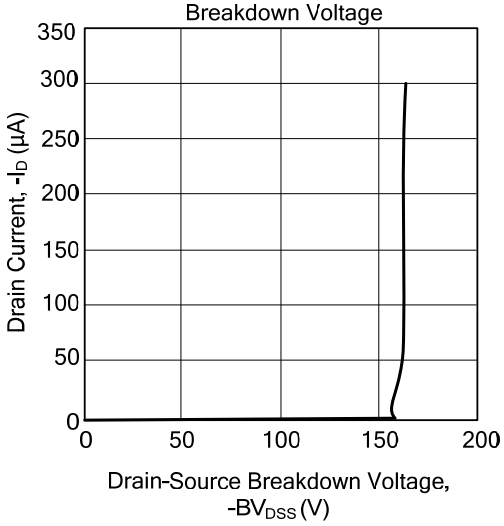
Unclamped Inductive Switching Waveforms

■ TYPICAL CHARACTERISTICS

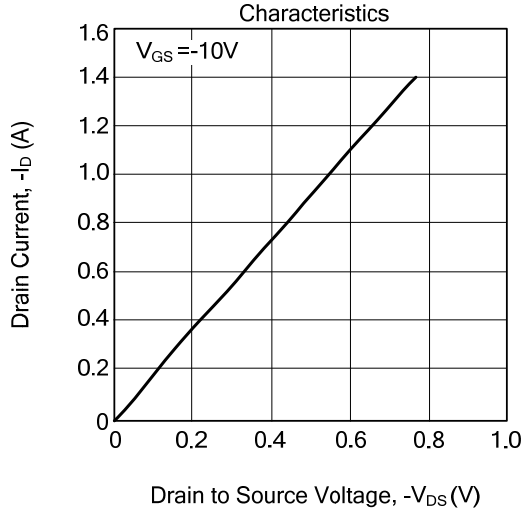
Drain Current vs. Gate Threshold Voltage



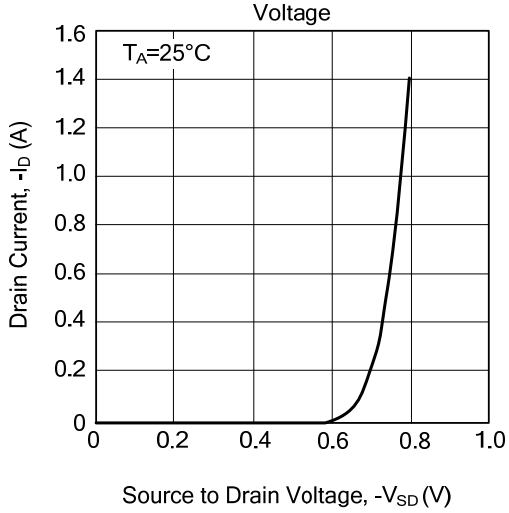
Drain Current vs. Drain-Source Breakdown Voltage



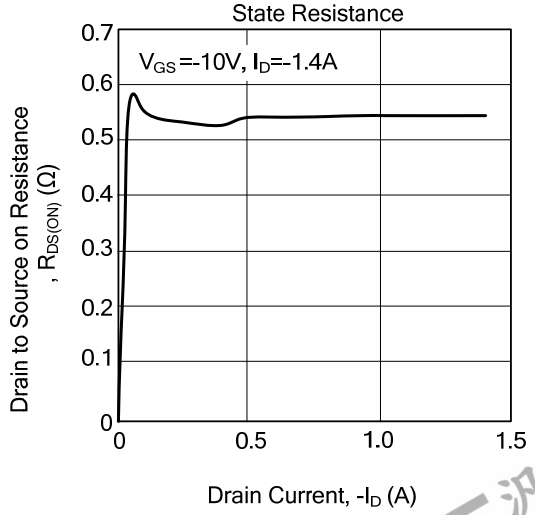
Drain-Source On-State Resistance Characteristics



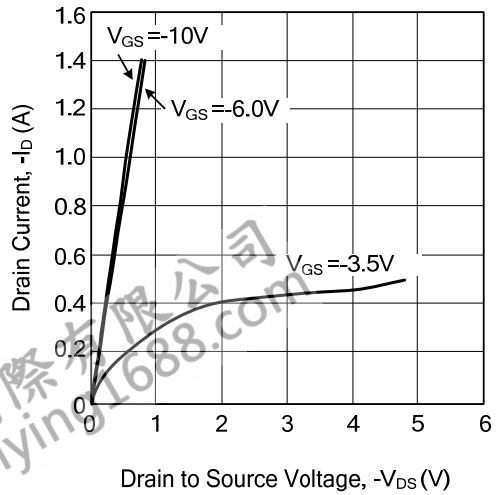
Drain Current vs. Source to Drain Voltage



Drain Current vs. Drain-Source On-State Resistance



On-State Characteristics



■ TYPICAL CHARACTERISTICS