

**UT8PP06M**

Advance

Power MOSFET

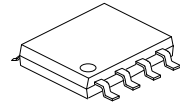
**P-CHANNEL ENHANCEMENT
MODE POWER MOSFET****DESCRIPTION**

The UTC **UT8PP06M** is a P-channel MOS Field Effect Transistor. it uses UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance.

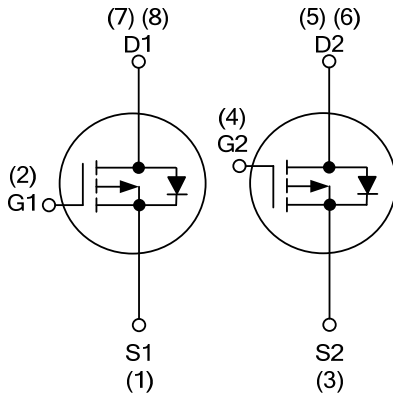
The UTC **UT8PP06M** is suitable for high voltage switching applications.

FEATURES

- * $R_{DS(ON)} \leq 110 \text{ m}\Omega$ @ $V_{GS} = -10\text{V}$, $I_D = -2.0\text{A}$
- * $R_{DS(ON)} \leq 145 \text{ m}\Omega$ @ $V_{GS} = -4.5\text{V}$, $I_D = -1.0\text{A}$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified



SOP-8

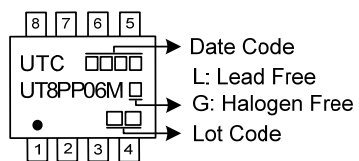
SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT8PP06ML-S08-R	UT8PP06MG-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

UT8PP06MG-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



■ **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
Continuous Drain Current		I_D	-8	A
Pulsed Drain Current (Note 2)		I_{DM}	-16	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	11.25	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	2.6	V/ns
Power Dissipation		P_D	1.2	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. $L = 0.1\text{mH}$, $I_{AS} = -15\text{A}$, $V_{DD} = -50\text{V}$, $R_G = 25\ \Omega$ Starting $T_J = 25^{\circ}\text{C}$

4. $I_{SD} \leq -4.0\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^{\circ}\text{C}$

■ **THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	125	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	104	$^{\circ}\text{C}/\text{W}$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

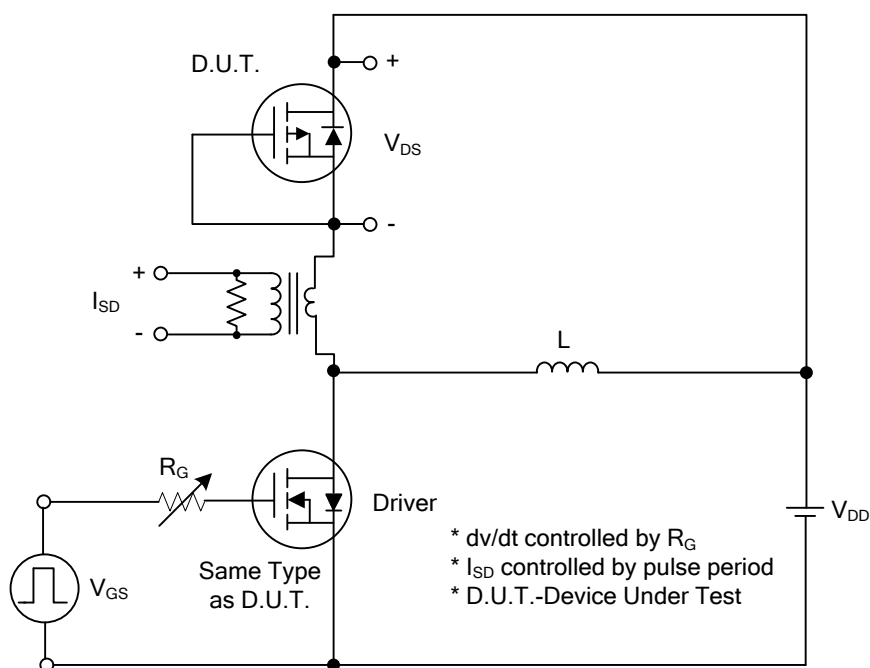
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A, V_{GS}=0V$	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 100	nA
ON CHARACTERISTICS						
Cutoff Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-2.0A$		90	110	m Ω
		$V_{GS}=-4.5V, I_D=-1.0A$		125	145	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=-20V, V_{GS}=0V, f=1.0MHz$		800		pF
Output Capacitance	C_{OSS}			60		pF
Reverse Transfer Capacitance	C_{RSS}			45		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS}=-48V, V_{GS}=-10V, I_D=-8.0A,$		20		nC
Gate to Source Charge	Q_{GS}			3.3		nC
Gate to Drain Charge	Q_{GD}			5		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-8.0A,$ $R_G=3\Omega$		6		ns
Rise Time	t_R			16		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			30		ns
Fall-Time	t_F			18		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				-8	A
Maximum Body-Diode Pulsed Current	I_{SM}				-16	A
Diode Forward Voltage	V_{SD}	$I_S=-8.0A, V_{GS}=0V$		-0.9	-1.4	V
Body Diode Reverse Recovery Time	t_{rr}	$I_S=-8.0A, V_{GS}=0V,$		25		ns
Reverse Recovery Charge	Q_{rr}	$dl_F/dt=100A/\mu s$ (Note 1)		18		ns

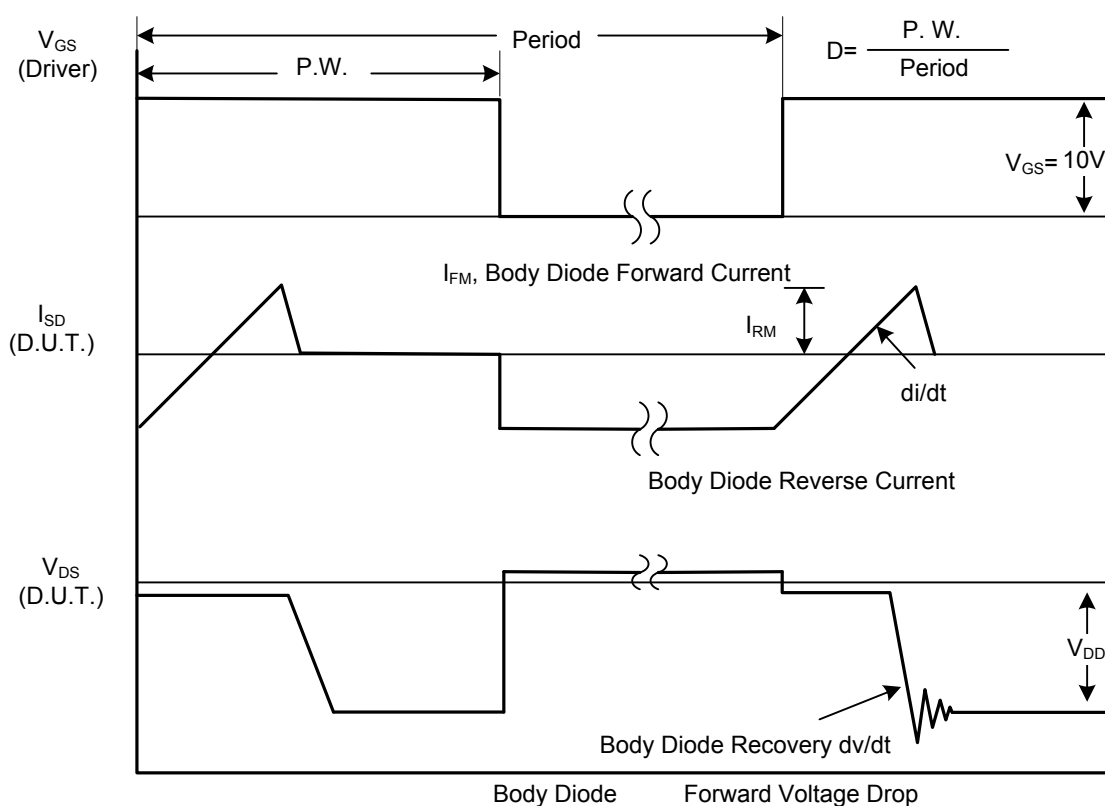
Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

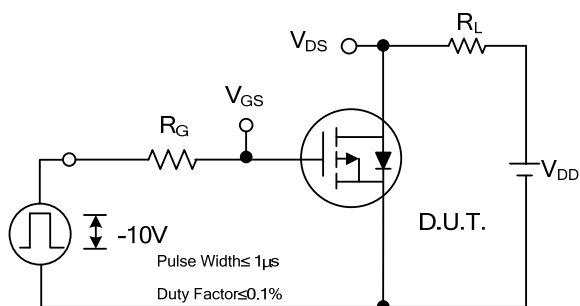


Peak Diode Recovery dv/dt Test Circuit

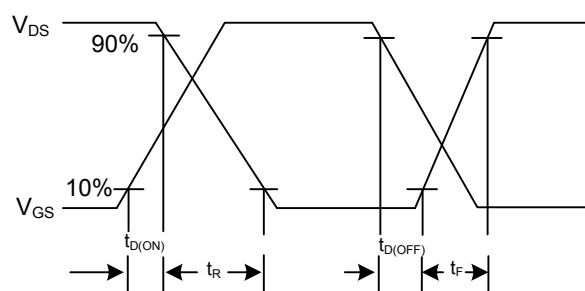


Peak Diode Recovery dv/dt Waveforms

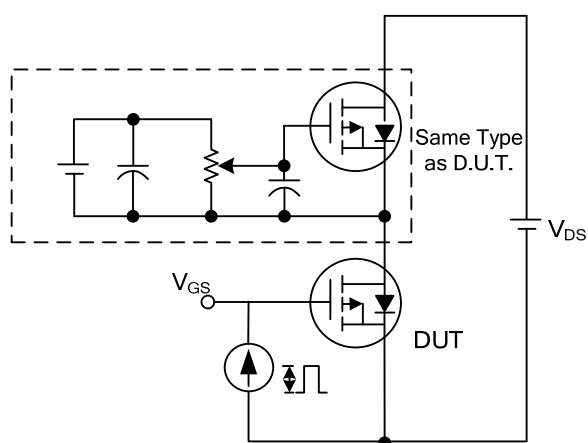
■ TEST CIRCUITS AND WAVEFORMS



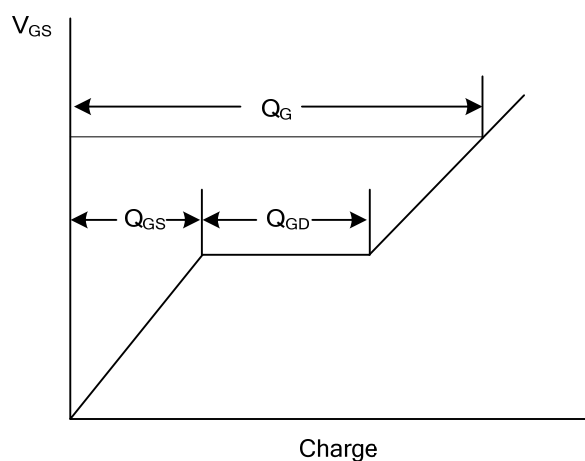
Switching Test Circuit



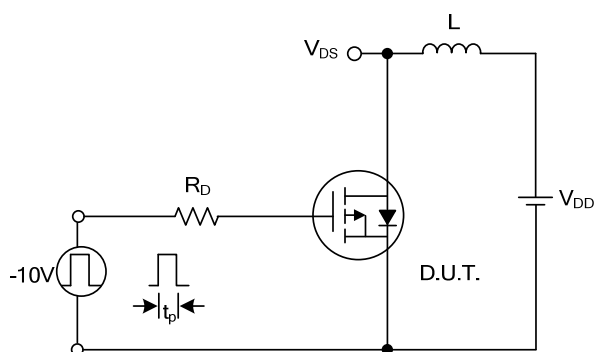
Switching Waveforms



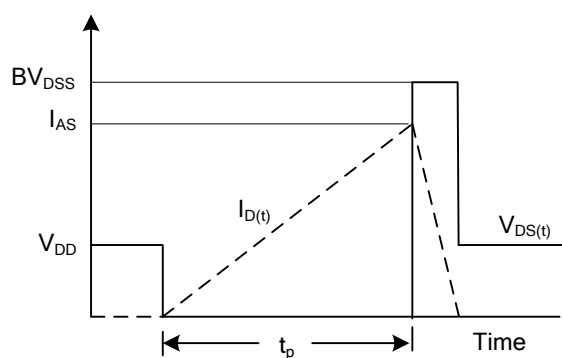
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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