

**UTT80P06**

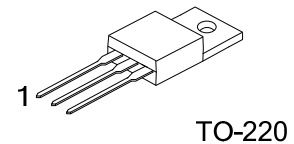
Preliminary

Power MOSFET

**-80A, -60V P-CHANNEL
POWER MOSFET****DESCRIPTION**

The UTC **UTT80P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, and it can also withstand high energy in the avalanche.

The UTC **UTT80P06** is suitable for low voltage and high speed switching applications

**FEATURES**

* $R_{DS(ON)} < 0.023\Omega$ @ $V_{GS} = -10V$, $I_D = -64A$

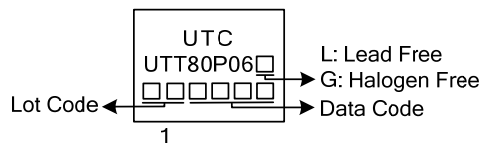
* High Switching Speed

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT80P06L-TA3-T	UTT80P06G-TA3-T	TO-220	G	D	S	Tube

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

UTT80P06L-TA3-T	(1) Packing Type	(1) T: Tube
	(2) Package Type	(2) TA3: TO-220
	(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

■ **ABSOLUTE MAXIMUM RATINGS** ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	-60	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	T _C =25°C	I _D	-80	A
		T _C =100°C		-64	A
	Pulsed	T _C =25°C	I _{DM}	-320	A
Avalanche Energy		Single Pulsed	E _{AS}	823	mJ
		Repetitive	E _{AR}	34	mJ
Power Dissipation		T _C =25°C	P _D	313	W
Junction Temperature			T _J	+150	°C
Storage Temperature			T _{STG}	-55~+150	°C

Notes: 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.

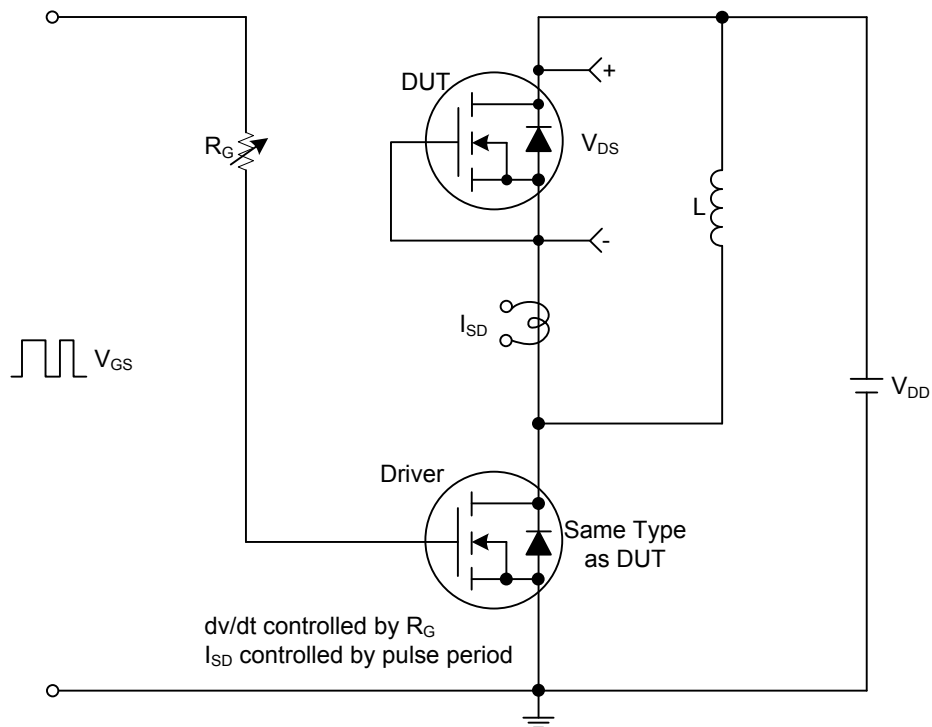
■ **THERMAL DATA**

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JC}	0.4	$^{\circ}\text{C/W}$
Junction to Ambient	θ_{JA}	62	$^{\circ}\text{C/W}$

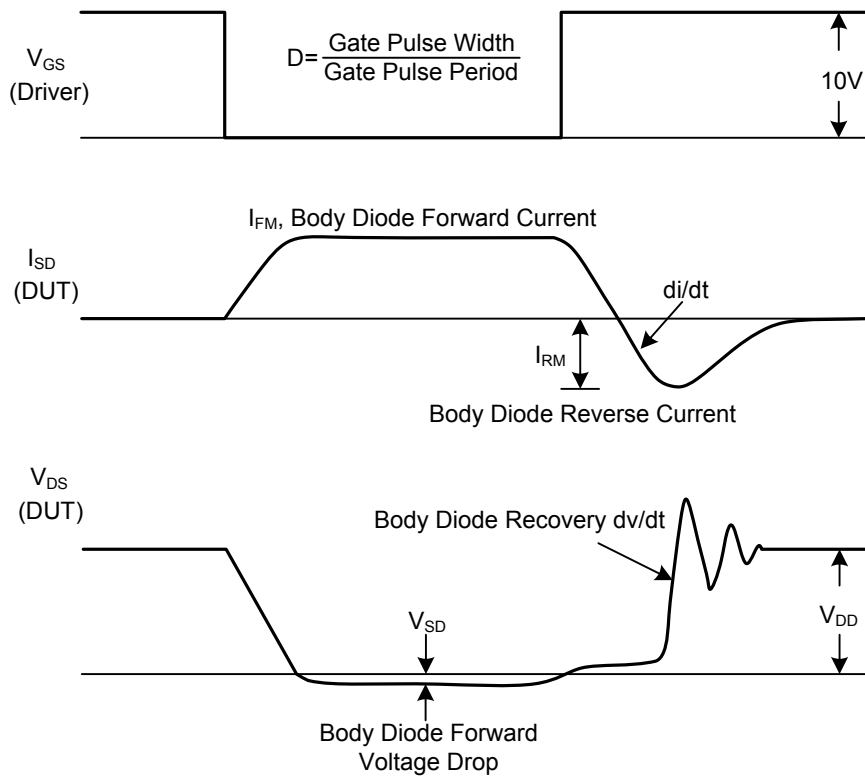
■ **ELECTRICAL CHARACTERISTICS** ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =-250μA, V _{GS} =0V	-60			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =-60V, V _{GS} =0V, T _J =25°C		-0.1	-1	μA
			V _{DS} =-60V, T _C =150°C		-10	-100	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-5.5mA	-2.1	-3	-4	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	I _D =-64A, V _{GS} =-10V		0.021	0.023	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =-25V, f=1.0MHz		4026	5033	pF
Output Capacitance		C _{OSS}			1252	1565	pF
Reverse Transfer Capacitance		C _{RSS}			437	546	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{DD} =-48V, I _D =-80A, V _{GS} = -10V		115	173	nC
Gate to Source Charge		Q _{GS}	V _{DD} =-48V, I _D =-80A		27.4	41	nC
Gate to Drain Charge		Q _{GD}			50	75	nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =-30V, I _D =-64A, R _G =1Ω, V _{GS} =-10V		24	36	ns
Rise Time		t _R			18	27	ns
Turn-OFF Delay Time		t _{D(OFF)}			56	84	ns
Fall-Time		t _F			30	45	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S	T _C =25°C			-80	A
Maximum Body-Diode Pulsed Current		I _{SM}	T _C =25°C			-320	A
Drain-Source Diode Forward Voltage		V _{SD}	I _F =-80A, V _{GS} =0V		-1.2	-1.6	V

■ TEST CIRCUITS AND WAVEFORMS



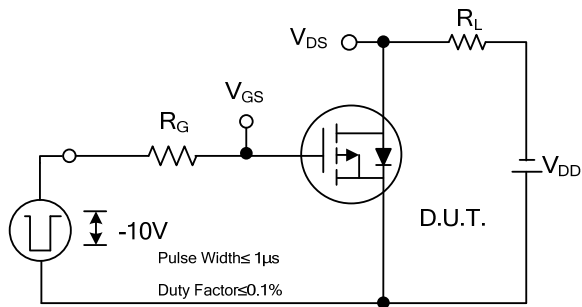
Peak Diode Recovery dv/dt Test Circuit



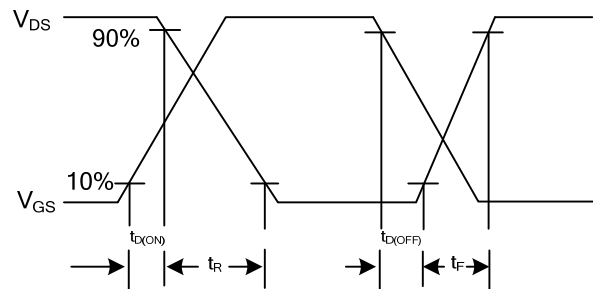
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

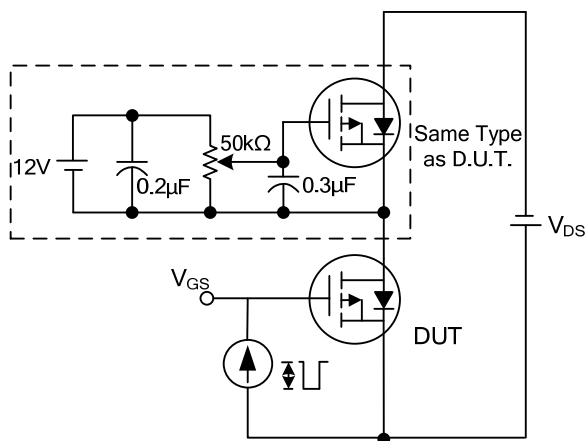
■ TEST CIRCUITS AND WAVEFORMS



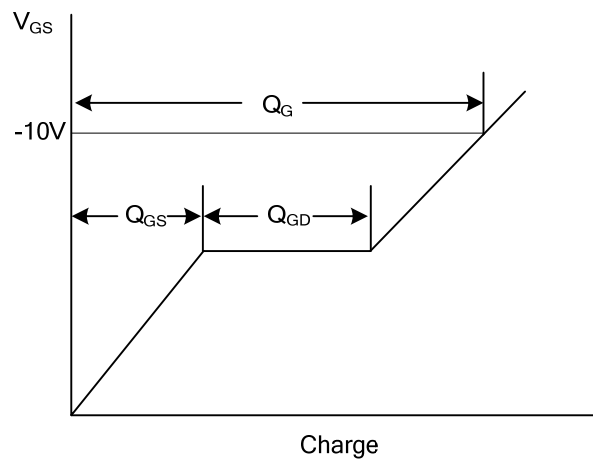
Switching Test Circuit



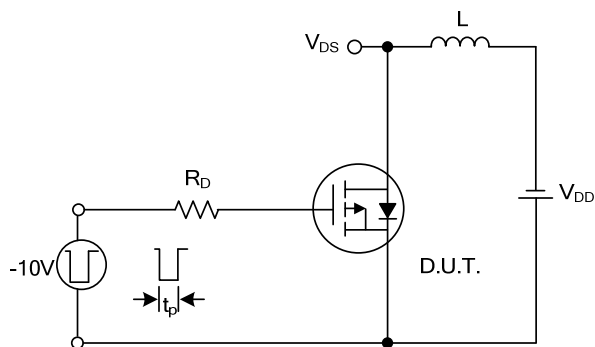
Switching Waveforms



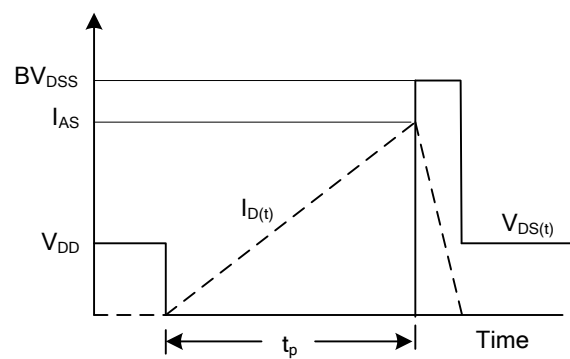
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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