



## UT2P06

Power MOSFET

### -2A, 60V (D-S) P-CHANNEL POWER MOSFET

#### DESCRIPTION

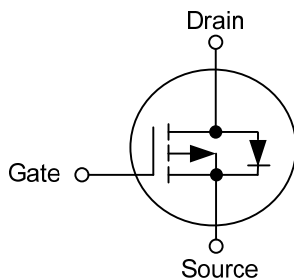
The UTC **UT2P06** is a P-channel enhancement power MOSFET using UTC's advanced technology to provide the customers with perfect  $R_{DS(ON)}$  and low gate charge.

This UTC **UT2P06** can be operated with -4.5V low gate voltage.

#### FEATURES

- \*  $R_{DS(ON)} < 0.4\Omega$  @  $V_{GS} = -10V$ ,  $I_D = -0.9A$
- \*  $R_{DS(ON)} < 0.6\Omega$  @  $V_{GS} = -4.5V$ ,  $I_D = -0.8A$
- \* High switching speed
- \* Low gate charge (Typ.=5.1 nC)

#### SYMBOL



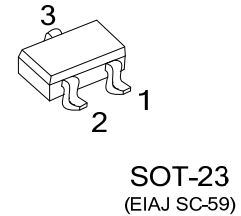
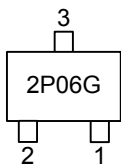
#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT2P06G-AE3-R	SOT-23	S	G	D	Tape Reel

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

UT2P06G-AE3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(3)Green Package	(3) G: Halogen Free and Lead Free

#### MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DS}$	-60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	-2
	Pulsed	$I_{DM}$	-6.03
Avalanche Current ( $L=0.1\text{mH}$ )	$I_{AR}$	-7	A
Power Dissipation (Note 1, 2)	$P_D$	0.3	W
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-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. Surface Mounted on FR4 Board.

3.  $t \leq 5 \text{ sec}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	320	$^{\circ}\text{C/W}$

Notes: Pulse width  $\leq 300\mu\text{s}$ ; duty cycle  $\leq 2\%$ . The pulse current is limited by the maximum junction temperature.

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

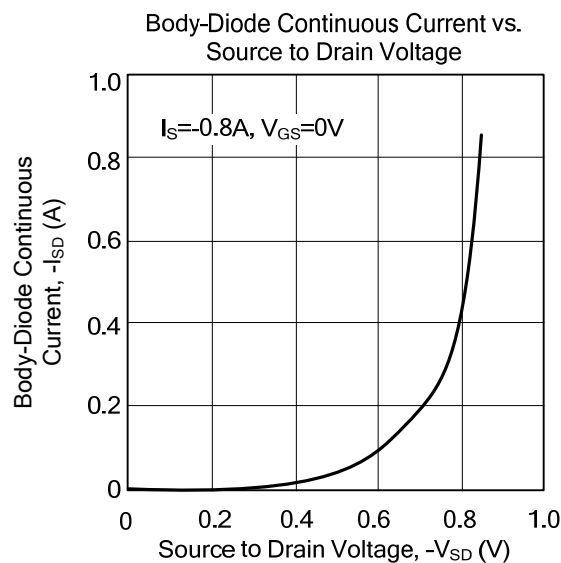
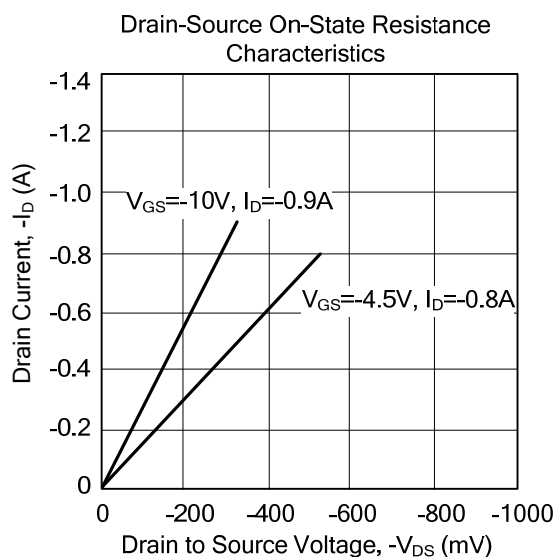
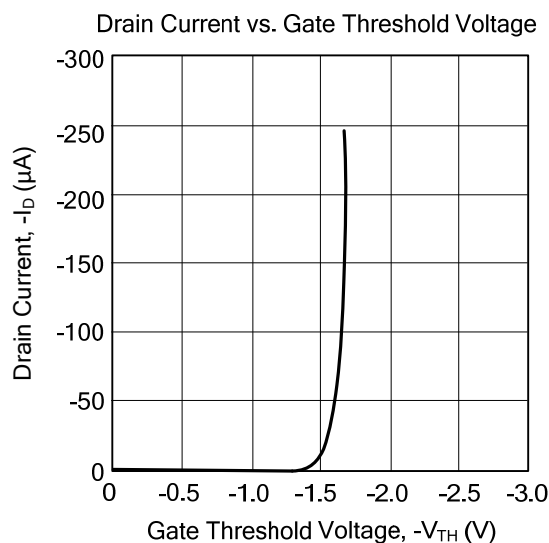
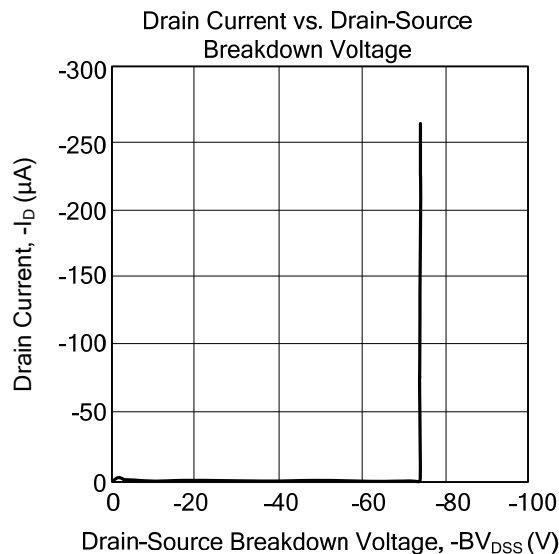
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV <sub>DSS</sub>	I <sub>D</sub> =-250μA, V <sub>DS</sub> =0V	-60			V
Drain-Source Leakage Current		I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-0.5	μA
Gate- Source Leakage Current	Forward	I <sub>GSS</sub>	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V			+100	nA
	Reverse		V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1		-3	V
Static Drain-Source On-State Resistance (Note 1)		R <sub>DS(ON)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -0.9A			0.4	Ω
			V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -0.8A			0.6	
DYNAMIC PARAMETERS							
Input Capacitance (Note 3)		C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-25V, f=1.0MHz		141		pF
Output Capacitance (Note 3)		C <sub>OSS</sub>			13.1		pF
Reverse Transfer Capacitance (Note 3)		C <sub>RSS</sub>			10.8		pF
SWITCHING PARAMETERS (Note 2)							
Total Gate Charge (Note 3)		Q <sub>G</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-30V, I <sub>D</sub> =-0.9A		5.1		nC
Gate to Source Charge (Note 3)		Q <sub>GS</sub>			0.7		nC
Gate to Drain Charge (Note 3)		Q <sub>GD</sub>			0.7		nC
Turn-ON Delay Time (Note 2, 3)		t <sub>D(ON)</sub>	V <sub>DD</sub> =-30V, I <sub>D</sub> =-1A, R <sub>G</sub> ≈6Ω, V <sub>GS</sub> =-10V		1.6		ns
Rise Time (Note 2, 3)		t <sub>R</sub>			2.3		ns
Turn-OFF Delay Time (Note 2, 3)		t <sub>D(OFF)</sub>			13		ns
Fall-Time (Note 2, 3)		t <sub>F</sub>			5.8		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS (Note 2)							
Maximum Body-Diode Continuous Current		I <sub>S</sub>	T <sub>A</sub> =25°C (Note 2)			-1.42	A
Maximum Body-Diode Pulsed Current		I <sub>SM</sub>	T <sub>A</sub> =25°C (Note 3)			-6.03	A
Drain-Source Diode Forward Voltage (Note 1)		V <sub>SD</sub>	I <sub>S</sub> =-0.8A, V <sub>GS</sub> =0V		-0.85	-0.95	V

Notes: 1. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ ; duty cycle  $\leq 2\%$ .

2. Switching characteristics are independent of operating junction temperature.

3. For design aid only, not subject to production testing.

## ■ TYPICAL CHARACTERISTICS



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.