



UF601Q

Power MOSFET

0.185A, 600V N-CHANNEL DEPLETION-MODE POWER MOSFET

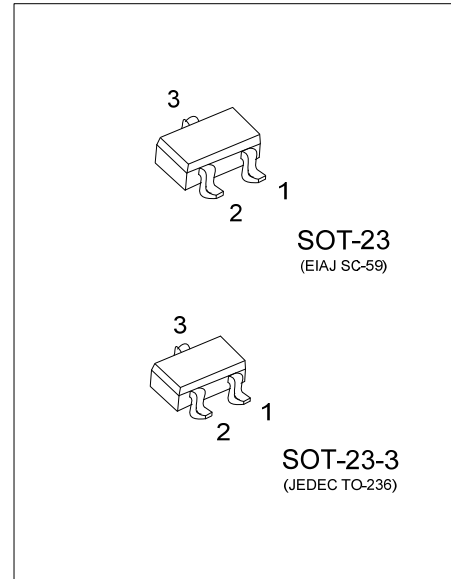
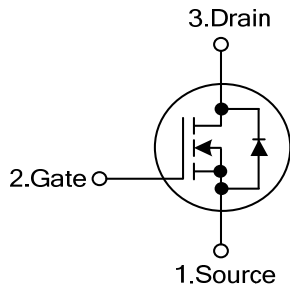
■ **DESCRIPTION**

The UTC **UF601Q** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

■ **FEATURES**

- * $R_{DS(ON)} < 700\Omega$ @ $V_{GS}=0V, I_D=3mA$
- * High Switching Speed

■ **SYMBOL**



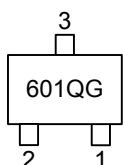
■ **ORDERING INFORMATION**

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UF601QG-AE3-R	SOT-23	S	G	D	Tape Reel
UF601QG-AE2-R	SOT-23-3	S	G	D	Tape Reel

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

<p>UF601QG-AE3-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) AE3: SOT-23, AE2: SOT-23-3</p> <p>(3) G: Halogen Free and Lead Free</p>
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■ **MARKING**



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (Note 2)		V_{DSS}	600	V
Drain-Gate Voltage (Note 2)		V_{DGX}	600	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	0.185	A
	Pulsed	I_{DM}	0.740	A
Power Dissipation		P_D	0.50	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. $T_J=+25^{\circ}\text{C}\sim+150^{\circ}\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	250	$^{\circ}\text{C}/\text{W}$

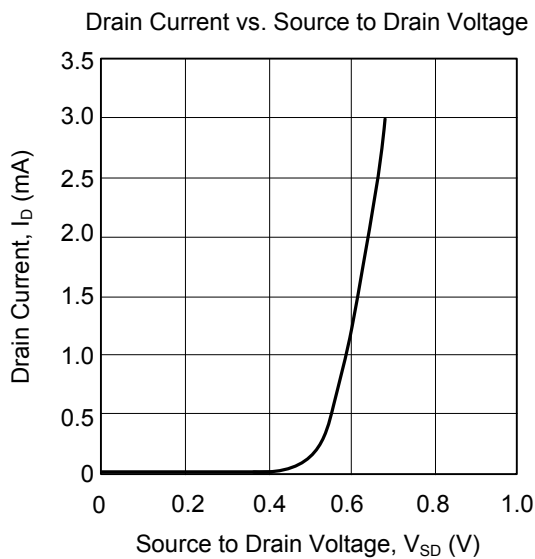
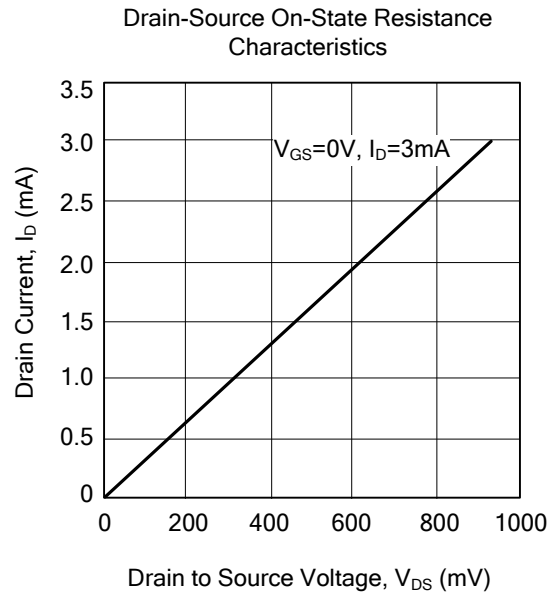
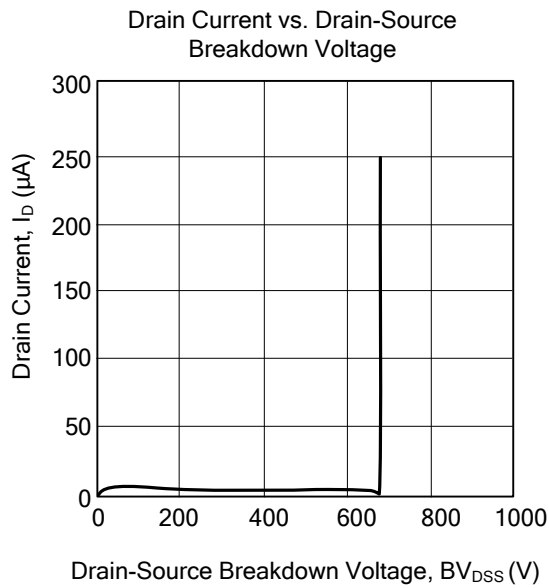
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=-5\text{V}$	600			V
Drain-Source Leakage Current		$I_{D(OFF)}$	$V_{DS}=600\text{V}$, $V_{GS}=-5\text{V}$			0.1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}$, $V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}$, $V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate to Source Cut Off Voltage		$V_{GS(OFF)}$	$V_{DS}=3\text{V}$, $I_D=8\mu\text{A}$	-2.7		-1.5	V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$	7.0			mA
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=0\text{V}$, $I_D=3\text{mA}$		300	700	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		15		pF
Output Capacitance		C_{OSS}			145		pF
Reverse Transfer Capacitance		C_{RSS}			4		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{GS}=-5\sim 5\text{V}$, $V_{DS}=30\text{V}$, $I_D=5\text{mA}$		7.6		nC
Gate to Source Charge		Q_{GS}			4		nC
Gate to Drain Charge		Q_{GD}			0.4		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{GS}=-5\sim 5\text{V}$, $V_{DD}=30\text{V}$, $I_D=5\text{mA}$, $R_G=20\Omega$		40		ns
Rise Time		t_R			20		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			45		ns
Fall-Time		t_F			280		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V_{SD}	$I_{SD}=3.0\text{mA}$, $V_{GS}=-10\text{V}$			1.4	V

Notes: 1. Repetitive rating, pulse width limited by maximum junction temperature.

2. Pulse width $\leq 380\mu\text{s}$; duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



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