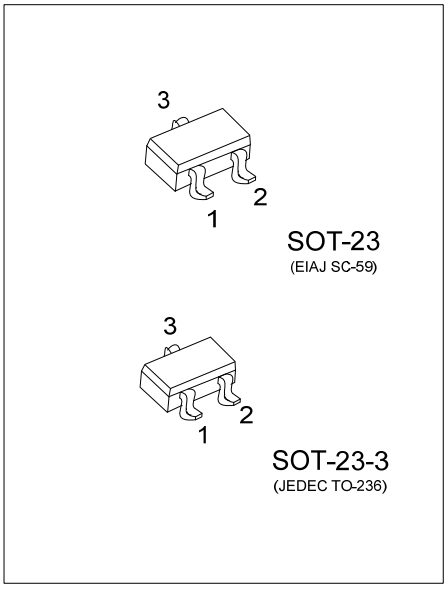
UF601Q

Power MOSFET

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



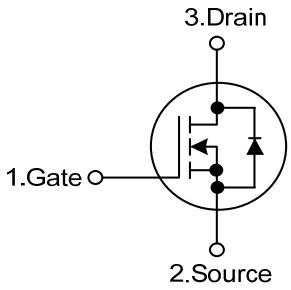
■ DESCRIPTION

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

■ FEATURES

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

■ SYMBOL



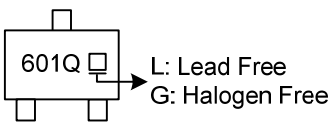
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF601QL-AE2-R	UF601QG-AE2-R	SOT-23-3	G	S	D	Tape Reel
UF601QL-AE3-R	UF601QG-AE3-R	SOT-23	G	S	D	Tape Reel

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

UF601QG-AE2-R (1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) AE2: SOT-23-3, AE3: SOT-23
(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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	°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. T_J=+25°C~+150°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	250	°C/W

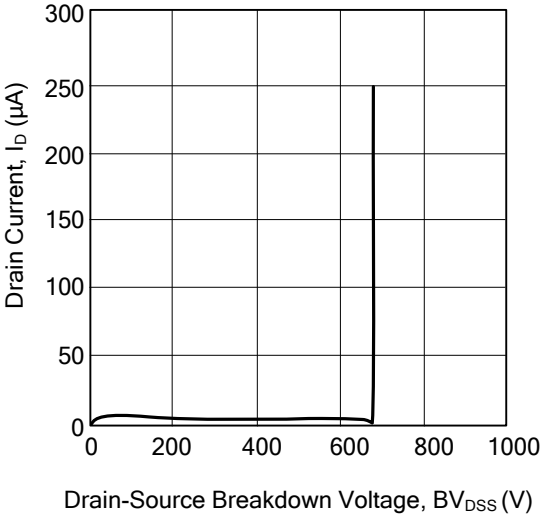
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=-5V	600			V
Drain-Source Leakage Current		$I_{D(OFF)}$	V_{DS}=600V, V_{GS}=-5V			0.1	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 to Source Cut Off Voltage		$V_{GS(OFF)}$	V_{DS}=3V, I_D=8μA	-1.0		-3.0	V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=25V, V_{GS}=0V	7.0			mA
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=0V, I_D=3mA		300	700	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		15		pF
Output Capacitance		C_{OSS}			145		pF
Reverse Transfer Capacitance		C_{RSS}			4		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=-5~5V, V_{DS}=30V, I_D=5mA		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}=-5~5V, V_{DD}=30V, I_D=5mA, R_G=20Ω		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}=3.0mA, V_{GS}=-10V			1.4	V

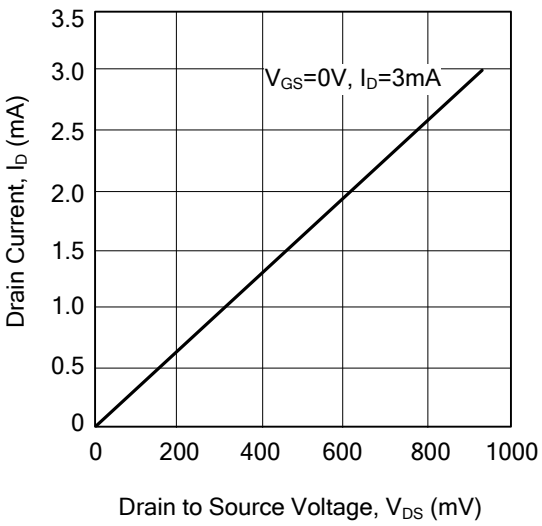
Notes: 1. Repetitive rating, pulse width limited by maximum junction temperature.
2. Pulse width≤380μs; duty cycle≤2%.

■ TYPICAL CHARACTERISTICS

Drain Current vs. Drain-Source Breakdown Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage