



UDF020N15

Preliminary

Power MOSFET

0.2A, 150V N-CHANNEL DEPLETION-MODE POWER MOSFET

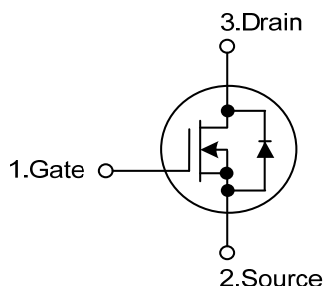
DESCRIPTION

The UTC **UDF020N15** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

FEATURES

- * $R_{DS(ON)} \leq 22 \Omega$ @ $V_{GS}=0V$, $I_D=200mA$
- * Depletion Mode (Normally On)
- * Proprietary Advanced Planar Technology
- * Rugged Polysilicon Gate Cell Structure
- * Fast Switching Speed

SYMBOL



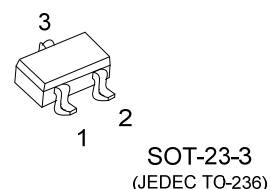
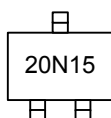
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UDF020N15L-AE2-R	UDF020N15G-AE2-R	SOT-23-3	G	S	D	Tape Reel

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

UDF020N15G-AE2-R	(1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3 (3) G: Halogen Free and Lead Free, L: Lead Free
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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_{DSX}	150	V
Drain-Gate Voltage (Note 2)		V_{DGX}	150	V
Gate-Source Voltage		V_{GSS}	± 30	V
Drain Current	Continuous	I_D	0.2	A
	Pulsed	I_{DM}	0.4	A
Power Dissipation		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. $T_J=+25^{\circ}\text{C} \sim +150^{\circ}\text{C}$.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	416	$^{\circ}\text{C/W}$

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 _{DSX}	I _D =250μA, V _{GS} =-30V	150			V
Drain-Source Leakage Current		I _{D(OFF)}	V _{DS} =150V, V _{GS} =-30V			10	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+30V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-30V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate to Source Cut Off Voltage		V _{GS(OFF)}	V _{DS} =20V, I _D =8.0μA	-13		-21	V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =25V, V _{GS} =0V	200			mA
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =0V, I _D =200mA			22	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =-15V, V _{DS} =25V, f=1.0MHz		1.5		pF
Output Capacitance		C _{OSS}			6.8		pF
Reverse Transfer Capacitance		C _{RSS}			2.4		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		t _{D(ON)}	V _{GS} =-15~0V, V _{DD} =30V, I _D =200mA, R _G =20Ω		54		ns
Rise Time		t _R			33		ns
Turn-OFF Delay Time		t _{D(OFF)}			46		ns
Fall-Time		t _F			37		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V _{SD}	I _{SD} =200mA, V _{GS} =-10V			1.4	V

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

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

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