

**UDF012N15**

Preliminary

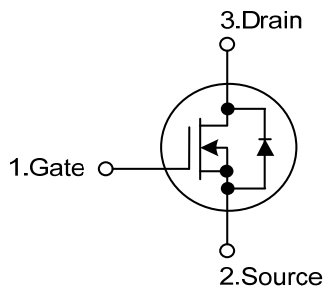
Power MOSFET

**0.12A, 150V N-CHANNEL
DEPLETION-MODE POWER
MOSFET****DESCRIPTION**

The UTC **UDF012N15** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

FEATURES

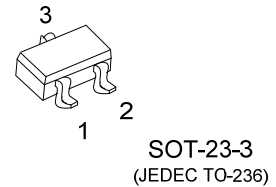
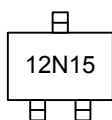
- * $R_{DS(ON)} \leq 35 \Omega$ @ $V_{GS}=0V$, $I_D=100mA$
- * Depletion Mode (Normally On)
- * Proprietary Advanced Planar Technology
- * Rugged Polysilicon Gate Cell Structure
- * Fast Switching Speed

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UDF012N15L-AE2-R	UDF012N15G-AE2-R	SOT-23-3	G	S	D	Tape Reel

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

UDF012N15G-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	0.12	A
	Pulsed	I_{DM}	0.24	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}	$I_D=250\mu A$, $V_{GS}=-30V$	150			V
Drain-Source Leakage Current		$I_{D(OFF)}$	$V_{DS}=150V$, $V_{GS}=-30V$			1	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		$V_{GS(OFF)}$	$V_{DS}=20V$, $I_D=8.0\mu A$	-13		-21	V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=25V$, $V_{GS}=0V$	120			mA
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=0V$, $I_D=100mA$			35	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=-15V$, $V_{DS}=25V$, $f=1.0MHz$		1.4		pF
Output Capacitance		C_{OSS}			5.4		pF
Reverse Transfer Capacitance		C_{RSS}			2.3		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	$V_{GS}=-15\sim 0V$, $V_{DD}=30V$, $I_D=120mA$, $R_G=20\Omega$		60		ns
Rise Time		t_R			32		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			35		ns
Fall-Time		t_F			42		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V_{SD}	$I_{Sp}=120mA$, $V_{GS}=-10V$			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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