



## 0.08A, 150V N-CHANNEL DEPLETION-MODE POWER MOSFET

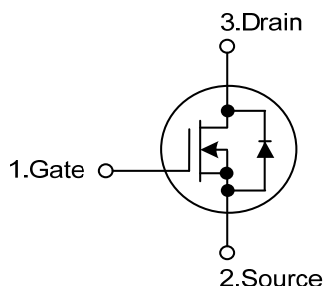
### DESCRIPTION

The UTC **UDF008N15** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

### FEATURES

- \*  $R_{DS(ON)} \leq 45 \Omega$  @  $V_{GS}=0V$ ,  $I_D=40mA$
- \* Depletion Mode (Normally On)
- \* Proprietary Advanced Planar Technology
- \* Rugged Polysilicon Gate Cell Structure
- \* Fast Switching Speed

### SYMBOL



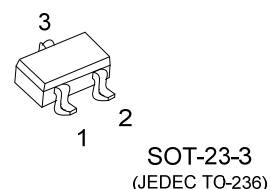
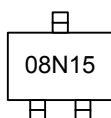
### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UDF008N15L-AE2-R	UDF008N15G-AE2-R	SOT-23-3	G	S	D	Tape Reel

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

UDF008N15G-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		$V_{GSS}$	$\pm 30$	V
Drain Current	Continuous	$I_D$	0.08	A
	Pulsed	$I_{DM}$	0.16	A
Power Dissipation		$P_D$	0.25	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	$\theta_{JA}$	500	$^{\circ}\text{C/W}$

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	$\mu A$
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		$I_{DSS}$	$V_{DS}=25V$ , $V_{GS}=0V$	80			mA
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=0V$ , $I_D=40mA$			45	$\Omega$
DYNAMIC PARAMETERS							
Input Capacitance		$C_{ISS}$	$V_{GS}=-15V$ , $V_{DS}=25V$ , $f=1.0MHz$		1.5		pF
Output Capacitance		$C_{OSS}$			5		pF
Reverse Transfer Capacitance		$C_{RSS}$			2.2		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	$V_{GS}=-15\sim 0V$ , $V_{DD}=30V$ , $I_D=80mA$ , $R_G=20\Omega$		32		ns
Rise Time		$t_R$			30		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			40		ns
Fall-Time		$t_F$			54		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		$V_{SD}$	$I_{SD}=80mA$ , $V_{GS}=-10V$			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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