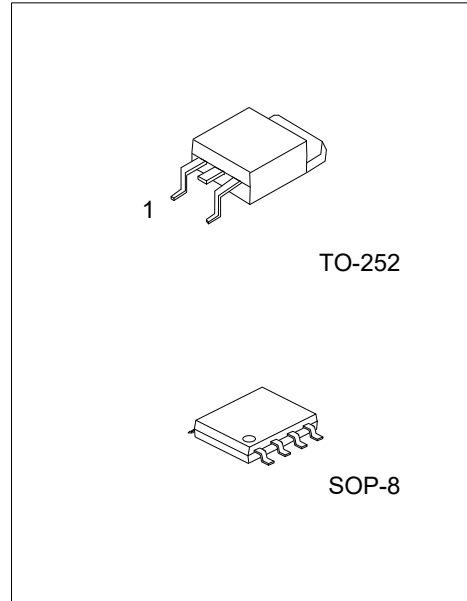




UDF002N170

Power MOSFET

0.02A, 1700V N-CHANNEL DEPLETION-MODE POWER MOSFET



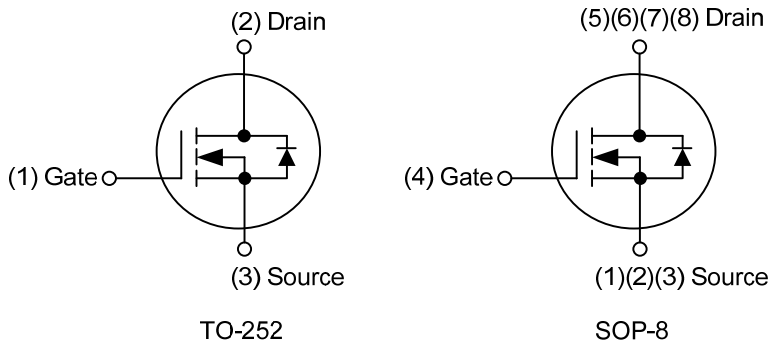
■ DESCRIPTION

The UTC **UDF002N170** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed.

■ FEATURES

- * $R_{DS(ON)} \leq 900 \Omega @ V_{GS}=0V, I_D=3.0mA$
- * High Switching Speed

■ SYMBOL



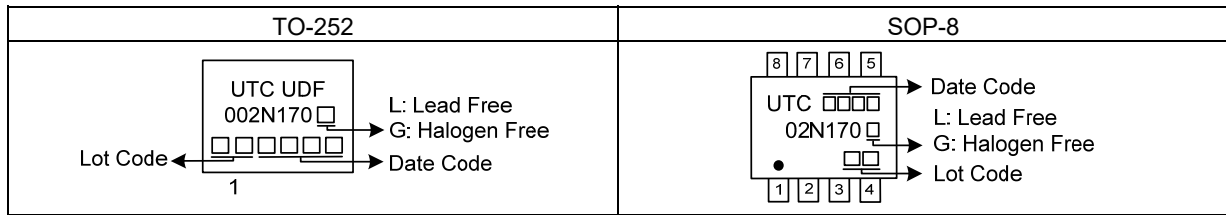
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UDF002N170L-TN3-R	UDF002N170G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UDF002N170L-S08-R	UDF002N170G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UDF002N170G-TN3-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) TN3: TO-252, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: 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_{DS}	1700	V
Drain-Gate Voltage (Note 2)		V_{DGX}	1700	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	0.02	A
	Pulsed	I_{DM}	0.04	A
Power Dissipation	TO-252	P_D	8	W
	SOP-8		1.8	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	TO-252	θ_{JA}	110	$^\circ\text{C/W}$
	SOP-8		190	$^\circ\text{C/W}$

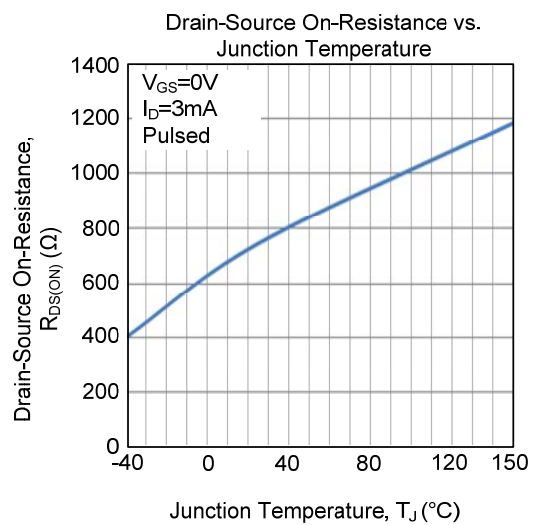
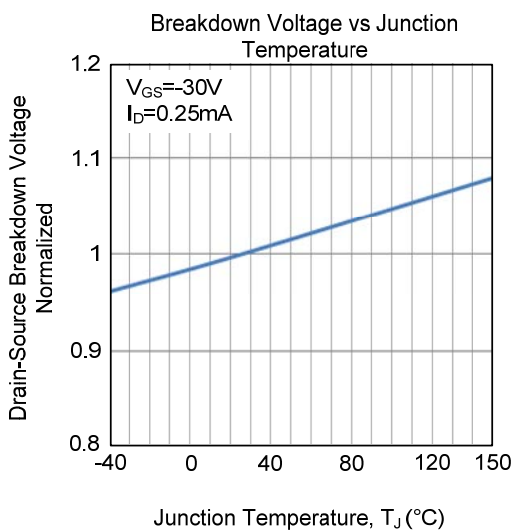
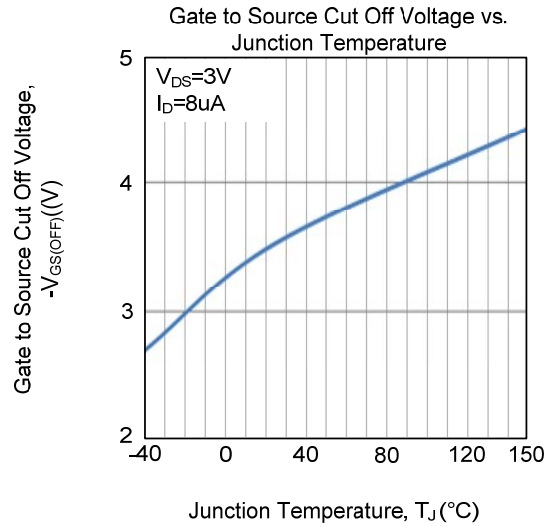
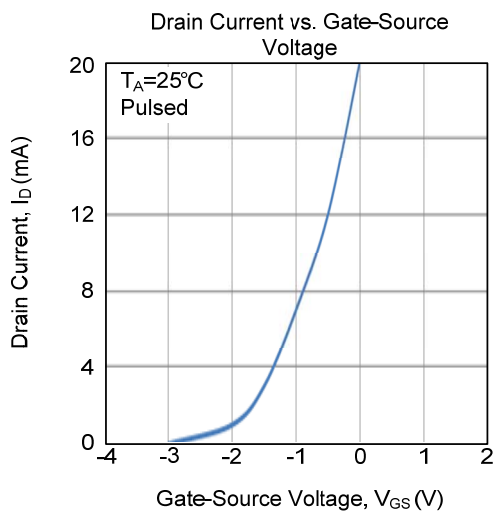
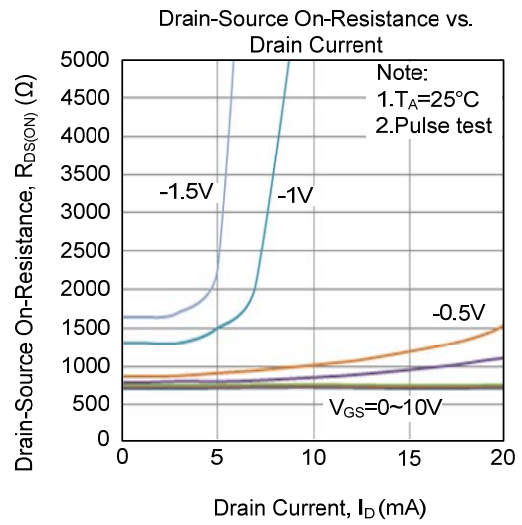
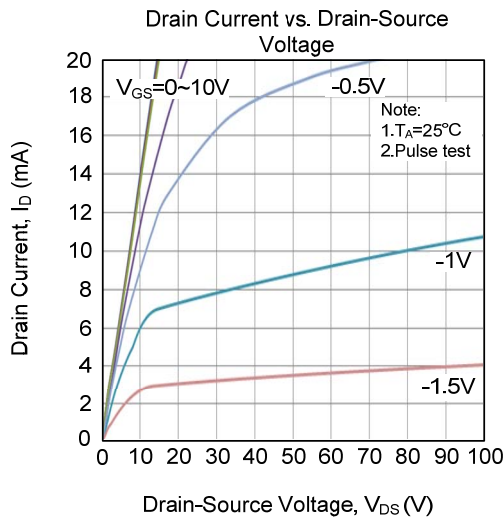
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage		BV_{DSX}	$I_D=250\mu\text{A}$, $V_{GS}=-30\text{V}$	1700			V	
Drain-Source Leakage Current		$I_{D(OFF)}$	$V_{DS}=1700\text{V}$, $V_{GS}=-30\text{V}$			10	μA	
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+30\text{V}$, $V_{DS}=0\text{V}$			+100	nA	
	Reverse		$V_{GS}=-30\text{V}$, $V_{DS}=0\text{V}$			-100	nA	
ON CHARACTERISTICS								
Gate to Source Cut Off Voltage		$V_{GS(OFF)}$	$V_{DS}=3\text{V}$, $I_D=8.0\mu\text{A}$	-2.0		-4.0	V	
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$	15			mA	
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=0\text{V}$, $I_D=3.0\text{mA}$			900	Ω	
DYNAMIC PARAMETERS								
Input Capacitance		C_{ISS}	$V_{GS}=-10\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		31		pF	
Output Capacitance		C_{OSS}				7		pF
Reverse Transfer Capacitance		C_{RSS}				2		pF
SWITCHING PARAMETERS								
Turn-ON Delay Time		$t_{D(ON)}$	$V_{GS}=-10\sim 0\text{V}$, $V_{DD}=100\text{V}$, $I_D=20\text{mA}$, $R_G=25\Omega$		10		ns	
Rise Time		t_R				120		ns
Turn-OFF Delay Time		$t_{D(OFF)}$				20		ns
Fall-Time		t_F				370		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS								
Drain-Source Diode Forward Voltage		V_{SD}	$I_{SD}=20\text{mA}$, $V_{GS}=-10\text{V}$			1.4	V	

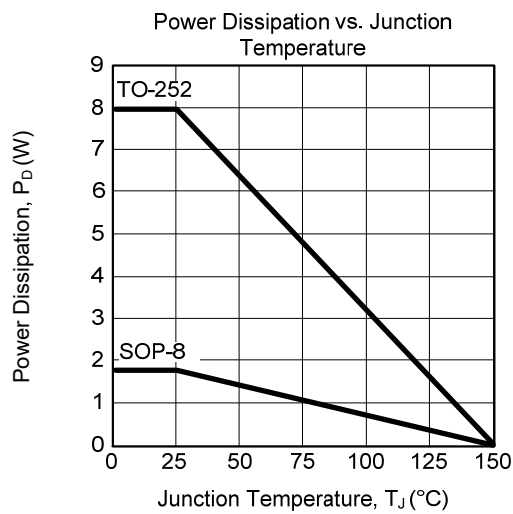
Notes: 1. Repetitive rating, pulse width limited by maximum junction temperature.

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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