



## UTN3055

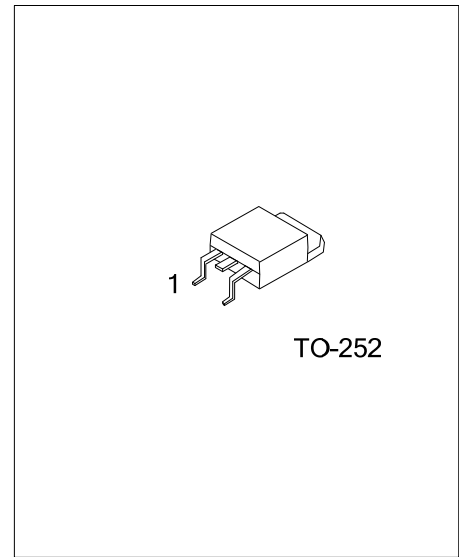
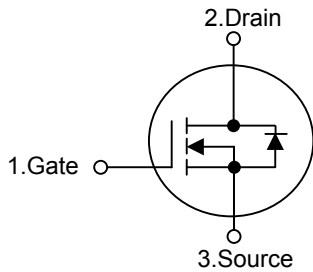
Power MOSFET

### 12A, 25V N-CHANNEL ENHANCEMENT MODE

#### DESCRIPTION

The UTC **UTN3055** is N-channel logic level enhancement mode field effect transistor.

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTN3055L-TN3-R	UTN3055G-TN3-R	TO-252	G	D	S	Tape Reel
UTN3055L-TN3-T	UTN3055G-TN3-T	TO-252	G	D	S	Tube

<p>UTN3055L-TN3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	25	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	12	A
Pulsed Drain Current (Note 1)	$I_{DM}$	45	
Repetitive Avalanche Energy ( $L=0.05\text{mH}$ , Duty Cycle $\leq 1\%$ )	$E_{AR}$	3	mJ
Power Dissipation	$P_D$	43	W
Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	$\theta_{JA}$			60	$^\circ\text{C/W}$
Junction-to-Case	$\theta_{JC}$			2.6	$^\circ\text{C/W}$

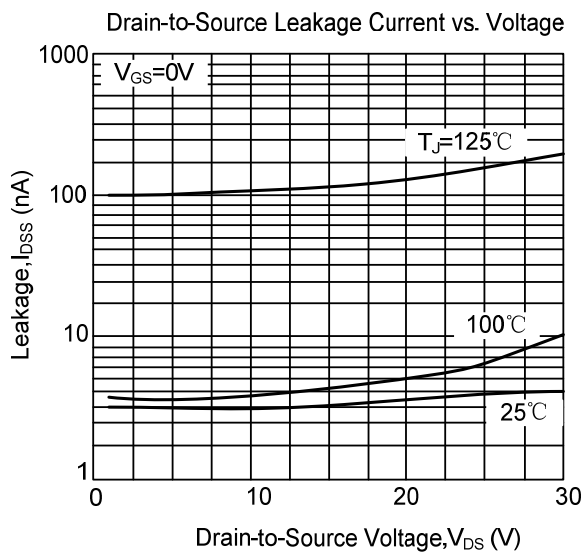
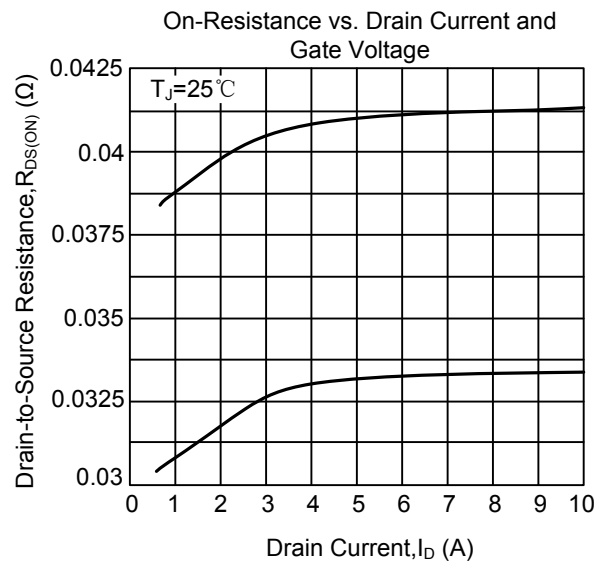
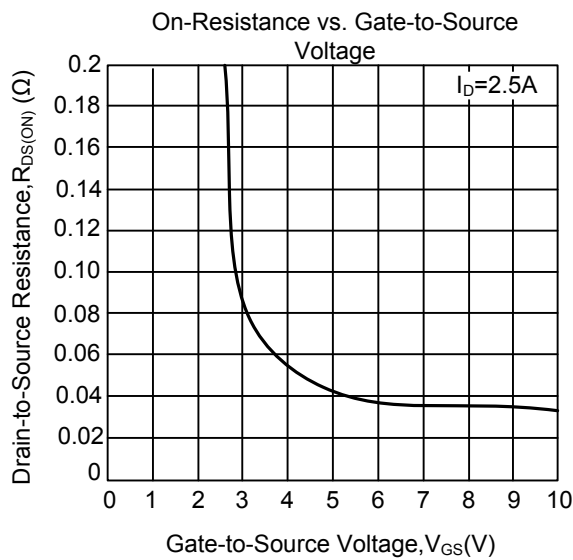
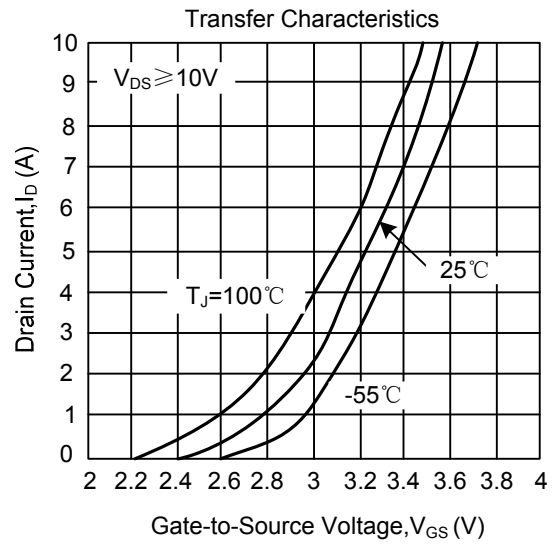
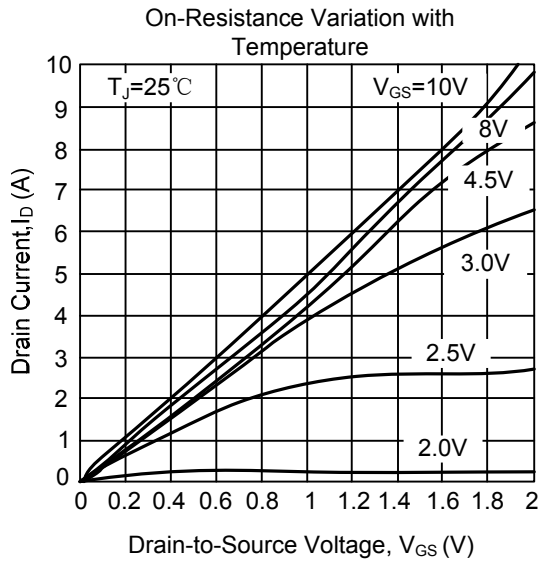
■ ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0\text{V}$ , $I_D=250\mu\text{A}$	25			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=20\text{V}$ , $V_{GS}=0\text{V}$			25	$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}$ , $V_{GS}=\pm 20\text{V}$			$\pm 250$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	0.8	1.2	2.5	V
On-State Drain Current (Note 2)	$I_{D(ON)}$	$V_{DS}=10\text{V}$ , $V_{GS}=10\text{V}$	12			A
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS}=10\text{V}$ , $I_D=12\text{A}$		50	90	$\text{m}\Omega$
		$V_{GS}=5\text{V}$ , $I_D=12\text{A}$		70	120	$\text{m}\Omega$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{ISS}$	$V_{GS}=0\text{V}$ , $V_{DS}=15\text{V}$ , $f=1.0\text{MHz}$		450		pF
Output Capacitance	$C_{OSS}$			200		pF
Reverse Transfer Capacitance	$C_{RSS}$			60		pF
<b>SWITCHING CHARACTERISTICS (Note 2)</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DS}=15\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=12\text{A}$ , $R_G=2.5\Omega$ , $R_L=1\Omega$		6.0		ns
Turn-ON Rise Time	$t_R$			6.0		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20		ns
Turn-OFF Fall Time	$t_F$			5.0		ns
Total Gate Charge	$Q_G$	$V_{DS}=15\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=6\text{A}$		15		nC
Gate-Source Charge	$Q_{GS}$			2.0		nC
Gate-Drain Charge	$Q_{GD}$			7.0		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage(Note2)	$V_{SD}$	$I_F=I_S$ , $V_{GS}=0\text{V}$			1.5	V
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				12	A
Maximum Pulsed Drain-Source Diode Forward Current (Note 1)	$I_{SM}$				45	A

Notes: 1. Pulse width limited by  $T_{J(MAX)}$

2. Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

■ TYPICAL CHARACTERISTICS



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