



UF3055

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

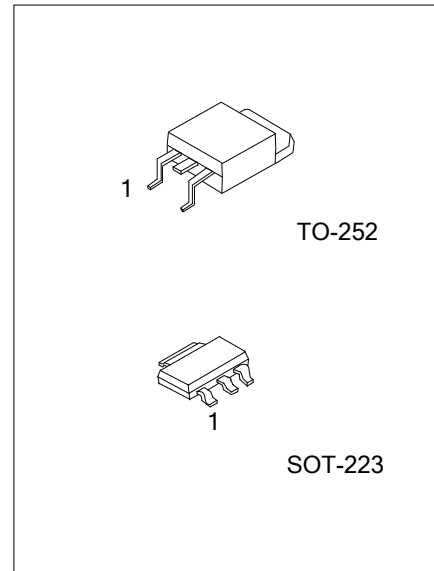
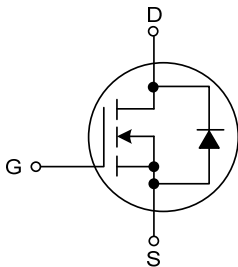
■ DESCRIPTION

As an N-channel enhancement mode power MOSFET, the UTC **UF3055** is designed for low voltage, high speed switching applications in power supplies, converters and power motor controls and bridge circuits.

■ FEATURES

* $R_{DS(ON)} < 110 \text{ m}\Omega @ V_{GS}=10\text{V}$

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	3	
UF3055L-AA3-R	UF3055G-AA3-R	SOT-223	G	D	S	Tape Reel
UF3055L-TN3-R	UF3055G-TN3-R	TO-252	G	D	S	Tape Reel

<p>UF3055L-TN3-R</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Lead Free 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AA3: SOT-223, TN3: TO-252 (3) L: Lead Free, G: Halogen Free
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■ MARKING INFORMATION

PACKAGE	MARKING
SOT-223	
TO-252	

■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain Source Voltage	V_{DSS}	60	V
Drain Gate Voltage ($R_{GS} = 10M\Omega$)	V_{DGR}	60	V
Gate Source Voltage	V_{GSS}	Continuous	± 20
		Non-Repetitive ($t_P \leq 10\text{ ms}$)	± 30
Continuous Drain Current ($T_A = 25^\circ\text{C}$)	I_D	3.0	A
Pulsed Drain Current ($t_P \leq 10\ \mu\text{s}$)	I_{DM}	9.0	A
Single Pulsed Avalanche Energy (Note 2)	EAS	74	mJ
Power Dissipation ($T_A = 25^\circ\text{C}$)	SOT-223	0.8	W
	TO-252	1.13	
Junction Temperature	T_J	150	$^\circ\text{C}$
Strong Temperature	T_{STG}	-55 ~ +175	$^\circ\text{C}$

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. $T_J = 25^\circ\text{C}$, $V_{DD} = 25\text{V}$, $V_{GS} = 10\text{V}$, $I_L = 7.0\text{A}$, $L = 3.0\text{mH}$, $V_{DS} = 60\text{V}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	SOT-223	150	$^\circ\text{C/W}$
	TO-252	110	

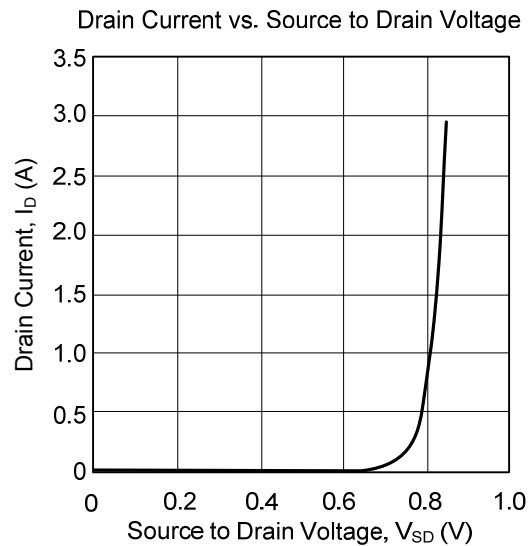
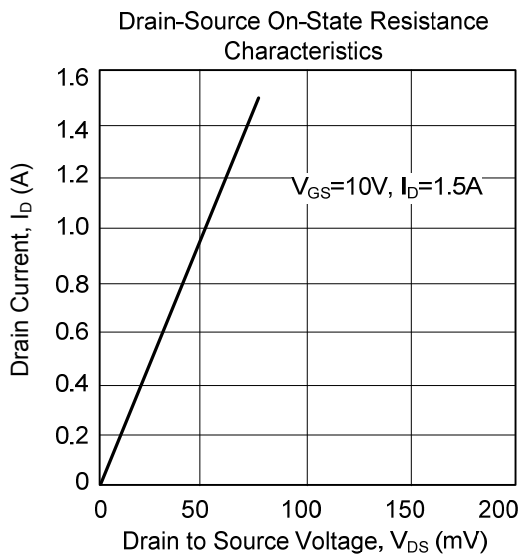
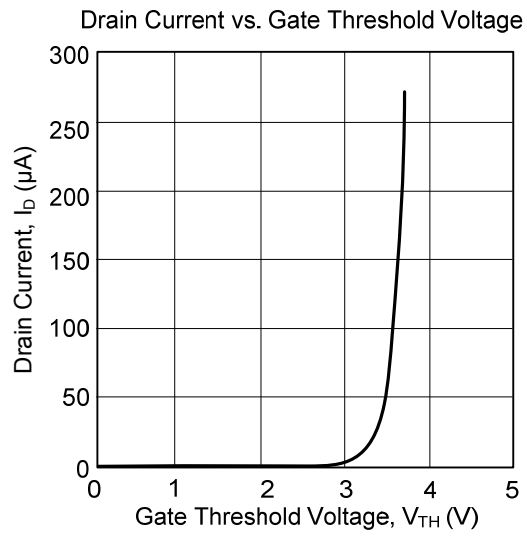
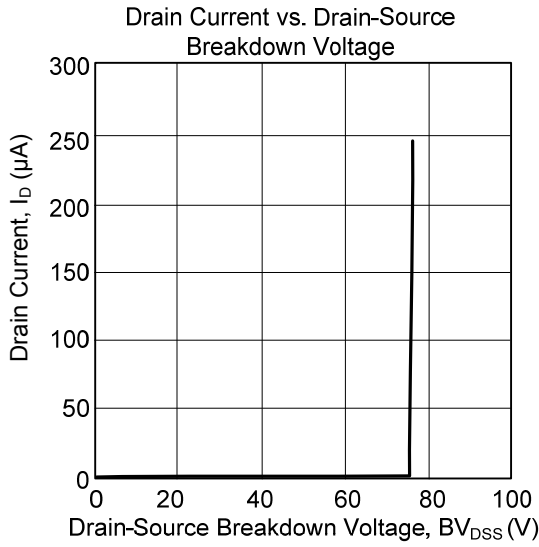
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain Source Breakdown Voltage (Note 1)	BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 250\ \mu\text{A}$	60	68		V
Temperature Coefficient (Positive)				66		$\text{mV}/^\circ\text{C}$
Drain-Source Leakage Current	I_{DSS}	$V_{GS} = 0\text{V}$, $V_{DS} = 60\text{V}$			1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}$, $I_D = 250\ \mu\text{A}$	2.0	3.0	4.0	V
Temperature Coefficient (Negative)					6.6	
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{V}$, $I_D = 1.5\text{A}$		50	110	$\text{m}\Omega$
Static Drain-to-Source On-Resistance	$V_{DS(ON)}$	$V_{GS} = 10\text{V}$, $I_D = 3\text{A}$		0.15	0.40	V
Forward Transconductance	g_{FS}	$V_{DS} = 8.0\text{V}$, $I_D = 1.7\text{A}$		3.2		M
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1.0\text{MHz}$		700	780	pF
Output Capacitance	C_{OSS}			180	210	pF
Reverse Transfer Capacitance	C_{RSS}			20	50	pF
SWITCHING PARAMETERS (Note 2)						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS} = 10\text{V}$, $V_{DD} = 30\text{V}$, $I_D = 3.0\text{A}$, $R_G = 9.1\ \Omega$ (Note 1)		50	70	ns
Turn-ON Rise Time	t_R			40	60	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			95	115	ns
Turn-OFF Fall-Time	t_F			30	50	ns
Total Gate Charge	Q_G		$V_{GS} = 10\text{V}$, $V_{DS} = 48\text{V}$, $I_D = 3.0\text{A}$ (Note 1)		50	70
Gate-Source Charge	Q_{GS}			6		nC
Gate-Drain Charge	Q_{GD}			3		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage	V_{SD}	$V_{GS} = 0\text{V}$, $I_S = 3.0\text{A}$		0.89	1.0	V
Body Diode Reverse Recovery Time	t_{RR}	$V_{GS} = 0\text{V}$, $I_S = 3.0\text{A}$, $dI/dt = 100\text{ A}/\mu\text{s}$ (Note 1)		30		ns
	t_A			22		ns
	t_B			8.6		ns
Body Diode Reverse Recovery Charge	Q_{RR}			0.04		nC

Notes: 1. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

2. Switching characteristics are independent of operating junction temperatures.

■ TYPICAL CHARACTERISTICS



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