



UF3055

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

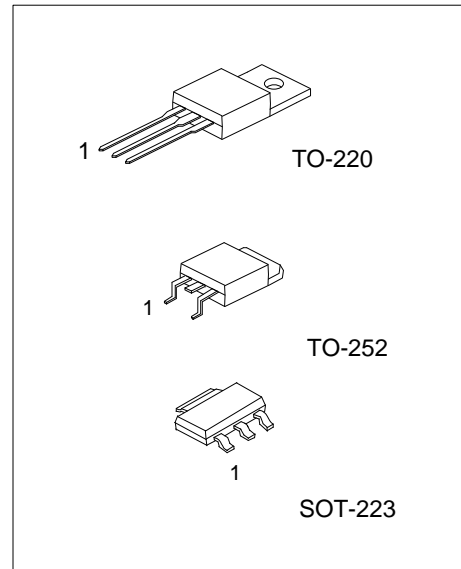
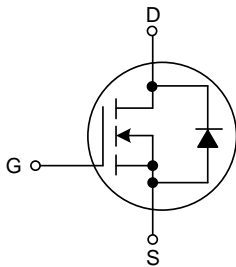
DESCRIPTION

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

* $R_{DS(ON)} \leq 110 \text{ m}\Omega @ V_{GS} = 10 \text{ V}, I_D = 1.5 \text{ A}$

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF3055L-AA3-R	UF3055G-AA3-R	SOT-223	G	D	S	Tape Reel
UF3055L-TA3-R	UF3055G-TA3-R	TO-220	G	D	S	Tube
UF3055L-TN3-R	UF3055G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UF3055G-AA3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel, T: Tube (2) AA3: SOT-223, TA3: TO-220, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-223	TO-220 / 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-220	2	W
	TO-252	1.13	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage 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)	θ_{JA}	SOT-223	150
		TO-220	62
		TO-252	110

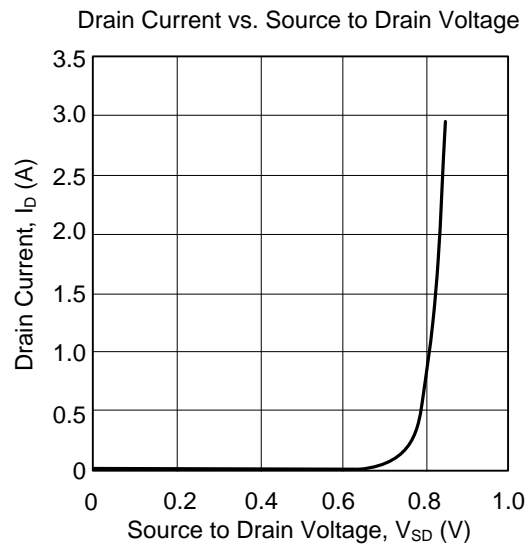
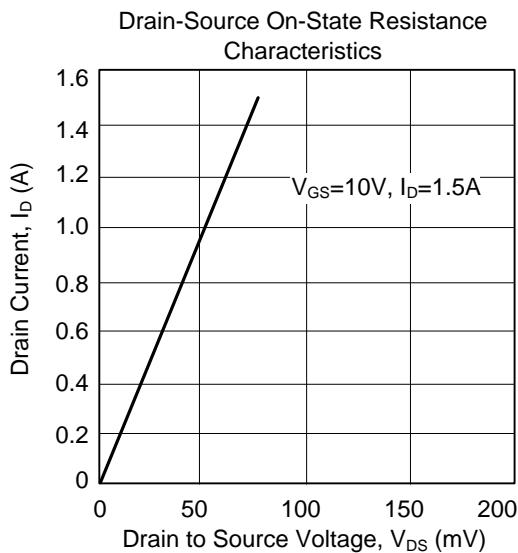
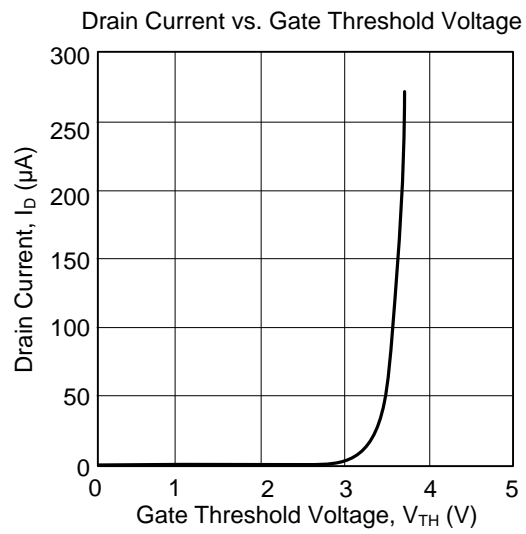
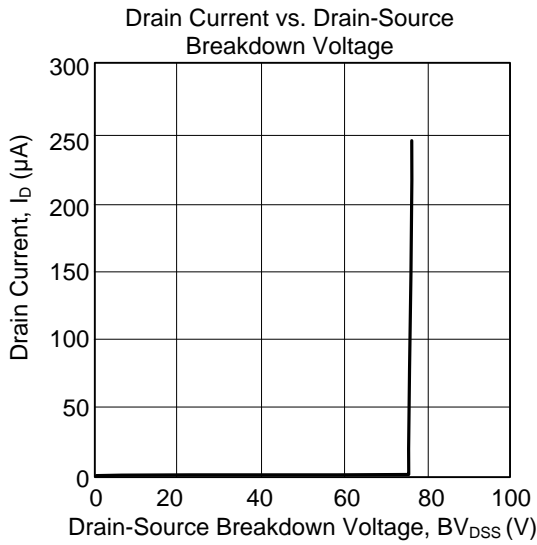
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain Source Breakdown Voltage (Note 1)	BV _{DSS}	V _{GS} = 0V, I _D =250μA	60	68		V
Temperature Coefficient (Positive)				66		mV/°C
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =60V			1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	2.0	3.0	4.0	V
Temperature Coefficient (Negative)					6.6	
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =1.5A		50	110	mΩ
Static Drain-to-Source On-Resistance	V _{DS(ON)}	V _{GS} =10 V, I _D =3A		0.15	0.40	V
Forward Transconductance	g _{FS}	V _{DS} =8.0V, I _D =1.7A		3.2		S
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0 V, V _{DS} =25 V, f=1.0MHz		700	780	pF
Output Capacitance	C _{OSS}			180	210	pF
Reverse Transfer Capacitance	C _{RSS}			20	50	pF
SWITCHING PARAMETERS (Note 2)						
Total Gate Charge	Q _G	V _{GS} =10V, V _{DS} =48V, I _D =3.0A (Note 1)		50	70	nC
Gate-Source Charge	Q _{GS}			6		nC
Gate-Drain Charge	Q _{GD}			3		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DD} =30V, I _D =3.0A , R _G =9.1Ω (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
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =3.0A		0.89	1.0	V
Body Diode Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _S =3.0A, dI/dt=100 A/μs (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 ≤ 300μs, Duty cycle ≤ 2%.

2. Switching characteristics are independent of operating junction temperatures.

■ TYPICAL CHARACTERISTICS



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