



UF3055

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

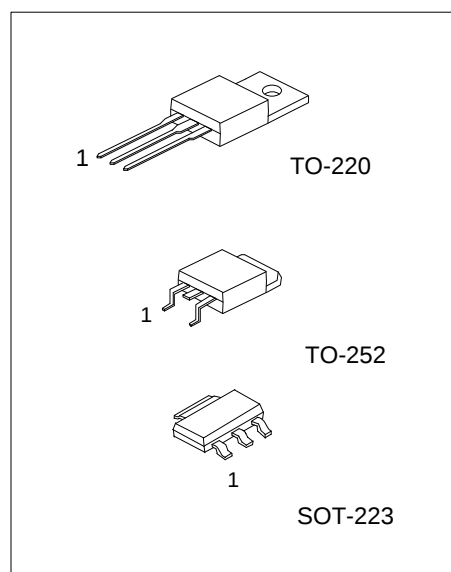
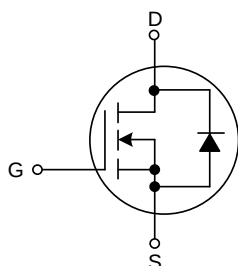
DESCRIPTION

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

UF3055G-AA3-R (1) Packing Type (2) Package Type (3) Green Package	(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
UF3055 L: Lead Free G: Halogen Free Date Code 1	UTC UF3055 L: Lead Free G: Halogen Free Date Code Lot Code 1

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain Source Voltage		V _{DSS}	60	V
Drain Gate Voltage (R _{GS} = 10MΩ)		V _{DGR}	60	V
Gate Source Voltage	Continuous	V _{GSS}	±20	V
	Non-Repetitive (t _P ≤ 10 ms)		±30	V
Continuous Drain Current (T _A = 25°C)		I _D	3.0	A
Pulsed Drain Current (t _P ≤ 10 μs)		I _{DM}	9.0	A
Single Pulsed Avalanche Energy (Note 2)		EAS	74	mJ
Power Dissipation (T _A = 25°C)	SOT-223	P _D	0.8	W
	TO-220		2	W
	TO-252		1.13	W
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-55 ~ +175	°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°C, V_{DD} = 25V, V_{GS} = 10V, I_L = 7.0A, L = 3.0mH, V_{DS} = 60V

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	SOT-223	θ _{JA}	150	°C/W
	TO-220		62	°C/W
	TO-252		110	°C/W

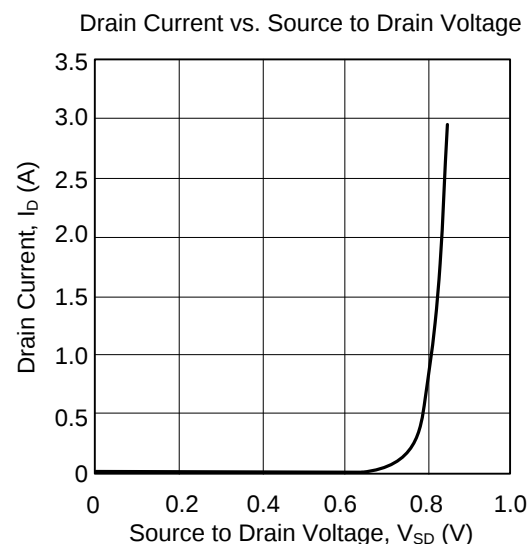
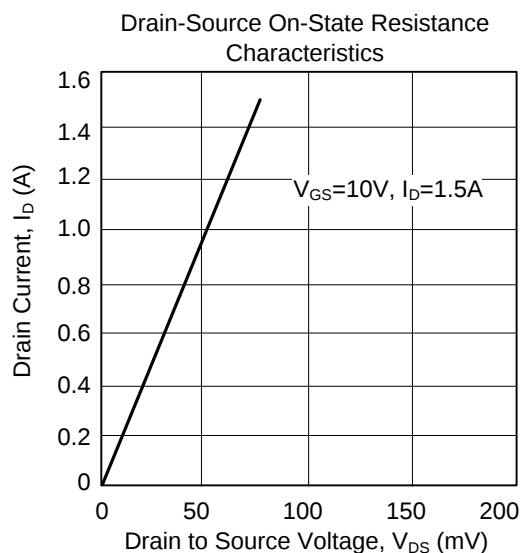
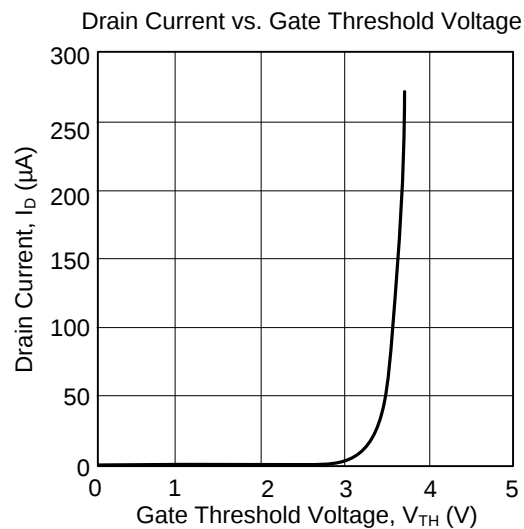
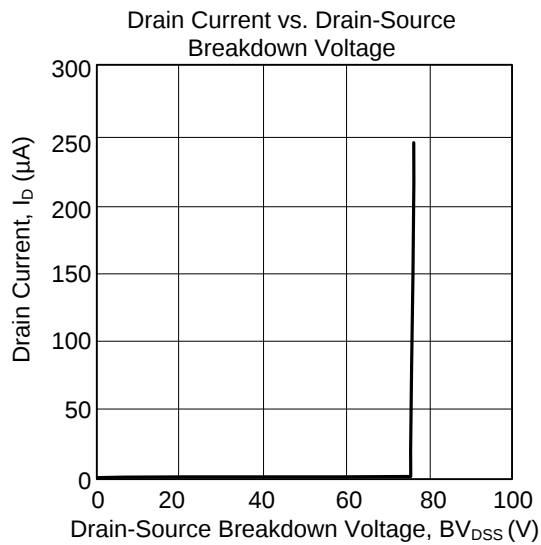
■ **ELECTRICAL CHARACTERISTICS** ($T_J = 25^\circ\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain Source Breakdown Voltage (Note 1)	BV _{DSS}	V _{GS} = 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 Tran conductance	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 $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Switching characteristics are independent of operating junction temperatures.

TYPICAL CHARACTERISTICS



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