



UTF3055

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

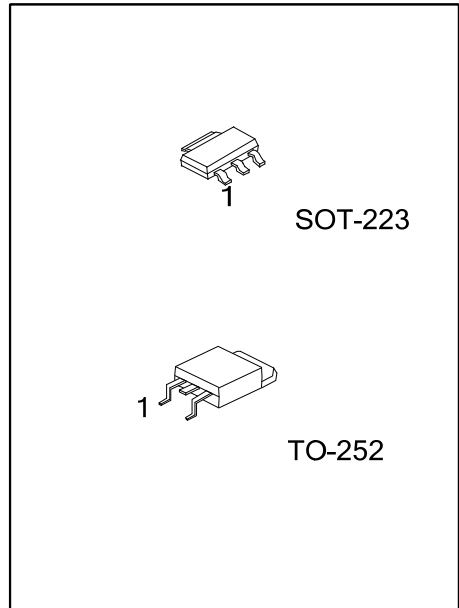
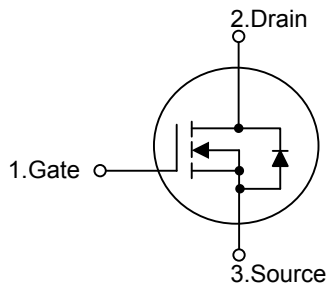
DESCRIPTION

As an N-channel enhancement mode power MOSFET, the UTC **UTF3055** 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	Halogen Free		1	2	3	
UTF3055L-AA3-R	UTF3055G-AA3-R	SOT-223	G	D	S	Tape Reel
UTF3055L-TN3-R	UTF3055G-TN3-R	TO-252	G	D	S	Tape Reel

UTF3055L-AA3-R		(1)Packing Type	(1) R: Tape Reel
		(2)Package Type	(2) AA3: SOT-223, TN3: TO-252
		(3)Lead Free	(3) G: Halogen Free, L:Lead Free

■ 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)		E _{AS}	74	mJ
Power Dissipation (T _a = 25°C) (Note 3)	SOT-223	P _D	0.83	W
	TO-252		1.136	
Derate above 25°C	SOT-223		14	mW/°C
	TO-252		20	
Junction Temperature		T _J	175	°C
Strong 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

3. When surface mounted to an FR4 board using 1" pad size, 1 oz.(Cu. Area 1.127 sq in).

■ THERMAL DATA

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

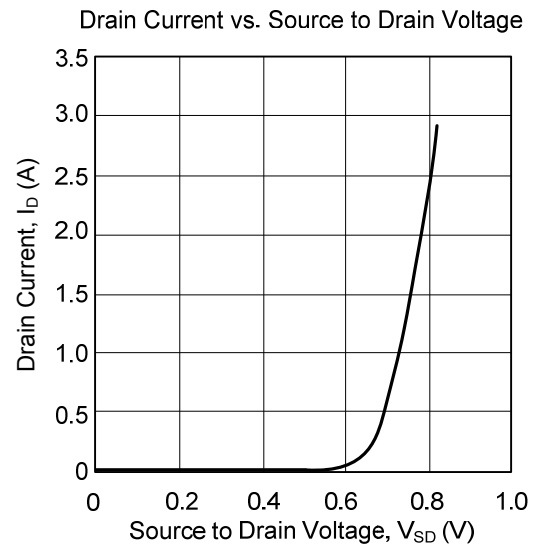
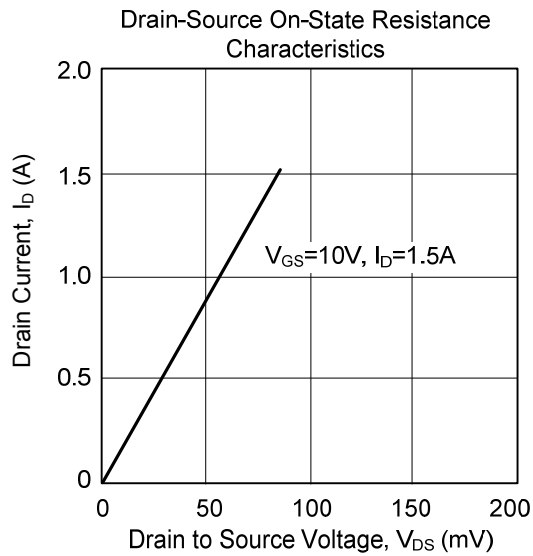
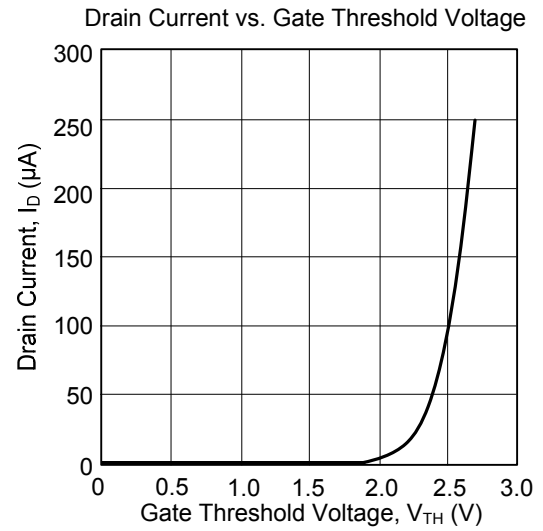
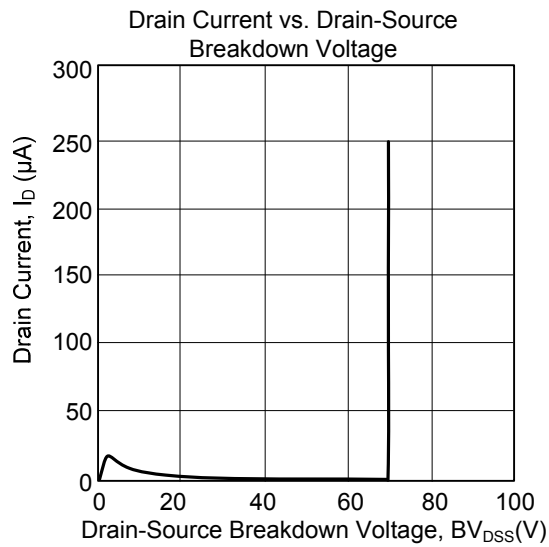
Note: When surface mounted to an FR4 board using 1" pad size, 1 oz.(Cu. Area 1.127 sq in).

■ 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		mV/°C
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =1.5A		88	110	mΩ	
Static Drain-to-Source On-Resistance	V _{DS(ON)}	V _{GS} =10 V, I _D =3A		0.27	0.40	V	
Forward Tran conductance	g _{FS}	V _{DS} =8.0V, I _D =1.7A		3.2		M	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V _{GS} =0 V, V _{DS} =25 V, f=1.0MHz		324	455	pF	
Output Capacitance	C _{OSS}				35	50	pF
Reverse Transfer Capacitance	C _{RSS}				110	155	pF
SWITCHING PARAMETERS (Note 2)							
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =10V, V _{DD} =30V, I _D =3.0A , R _G =9.1Ω (Note 1)		9.4	20	ns	
Turn-ON Rise Time	t _R			14	30	ns	
Turn-OFF Delay Time	t _{D(OFF)}			21	45	ns	
Turn-OFF Fall-Time	t _F			13	30	ns	
Total Gate Charge	Q _G	V _{GS} =10V, V _{DS} =48V, I _D =3.0A (Note 1)		10.6	22	nC	
Gate-Source Charge	Q _{GS}			1.9		nC	
Gate-Drain Charge	Q _{GD}			4.2		nC	
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	

Note: 1. Pulse Test: Pulse Width $\leq 300\text{s}$, Duty Cycle $\leq 2.0\%$.
2. Switching characteristics are independent of operating junction temperatures.

■ TYPICAL CHARACTERISTICS



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