



UTF3055

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

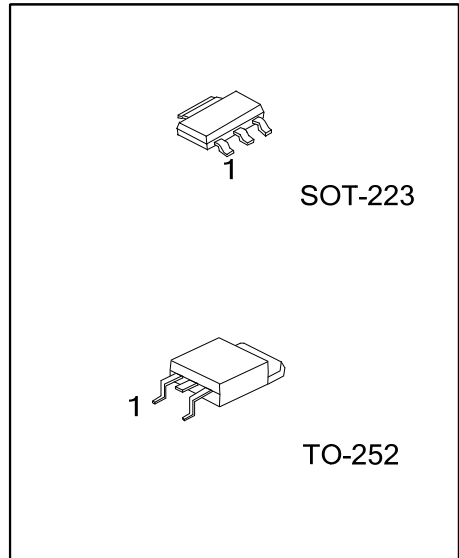
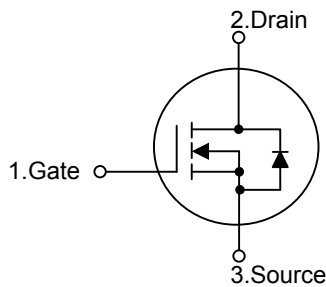
■ DESCRIPTION

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	
-	UTF3055G-AA3-R	SOT-223	G	D	S	Tape Reel
UTF3055L-TN3-R	UTF3055G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTF3055G-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 (2) AA3: SOT-223, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-223	TO-252

■ 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	V _{GSS}	±20	V
		±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) (Note 3)	P _D	SOT-223	0.83
		TO-252	1.136
Derate above 25°C	P _D	SOT-223	14
		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)	θ _{JA}	SOT-223	150
		TO-252	110

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

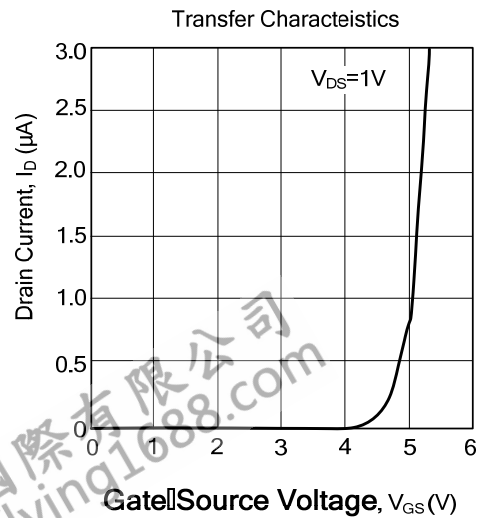
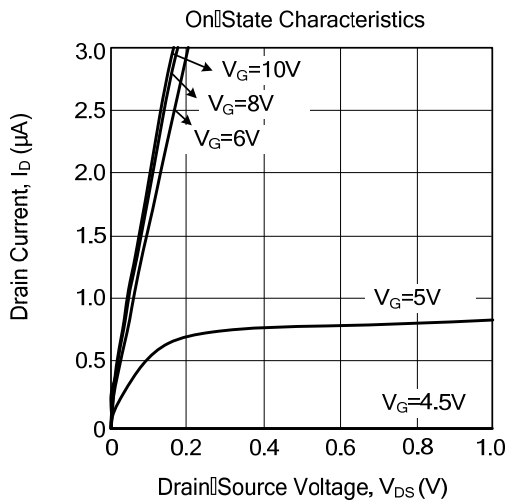
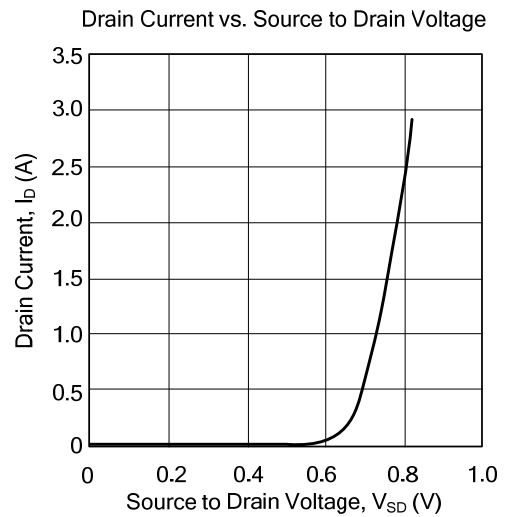
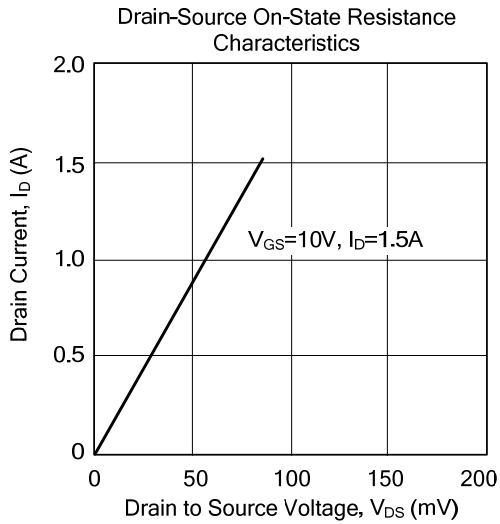
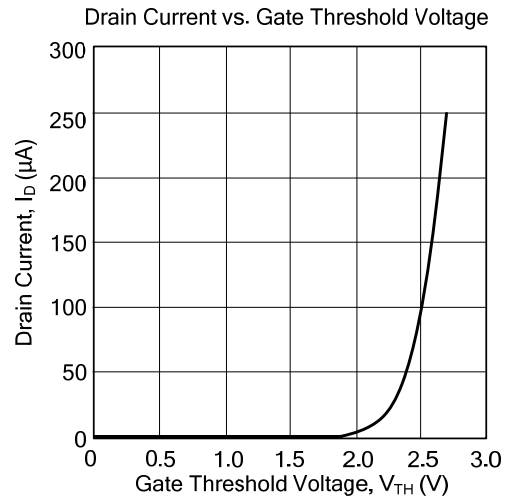
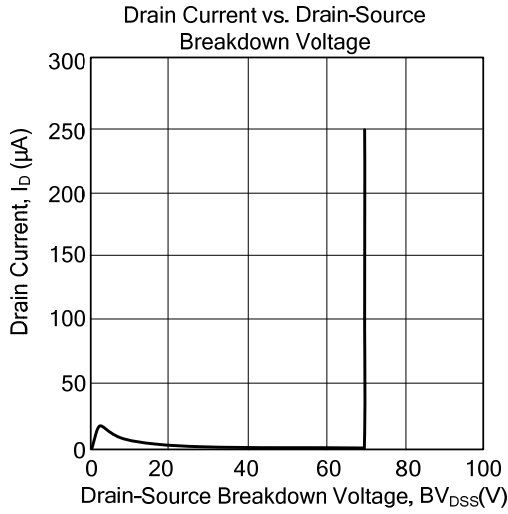
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise noted)

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		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

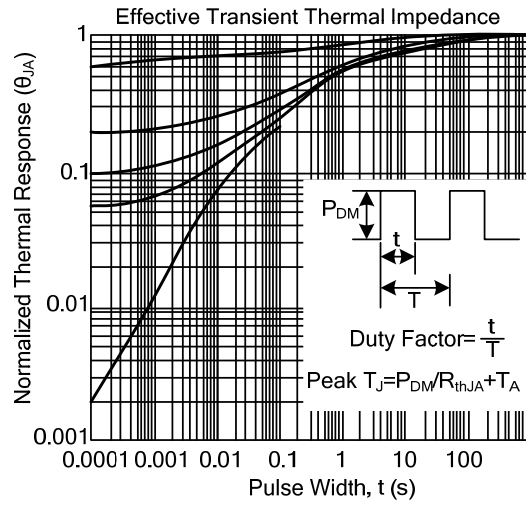
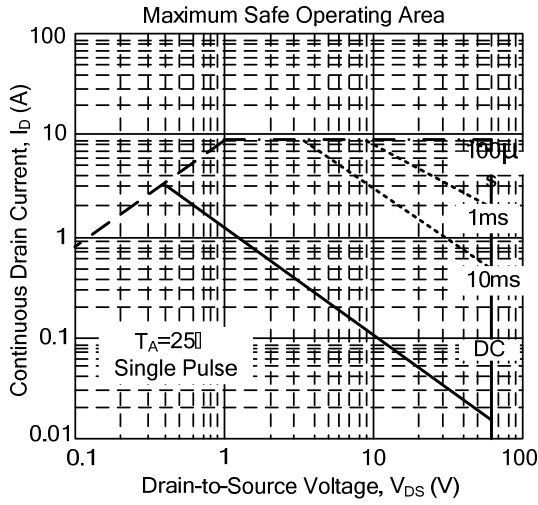
Notes: 1. Pulse Test : Pulse width ≤300μs, Duty cycle ≤2%.

2. Switching characteristics are independent of operating junction temperatures.

■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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