



UTT40N03

Power MOSFET

40A, 30V N-CHANNEL POWER MOSFET

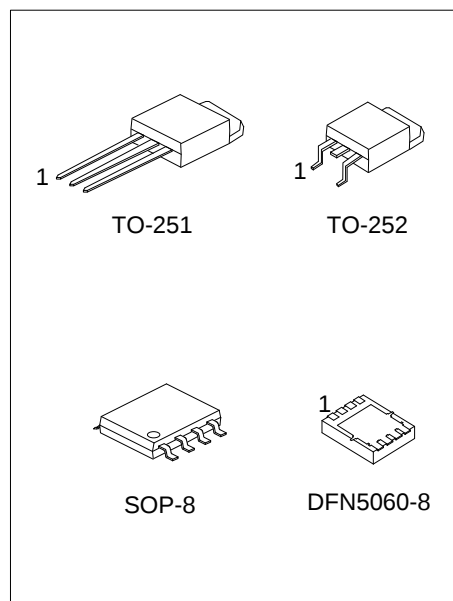
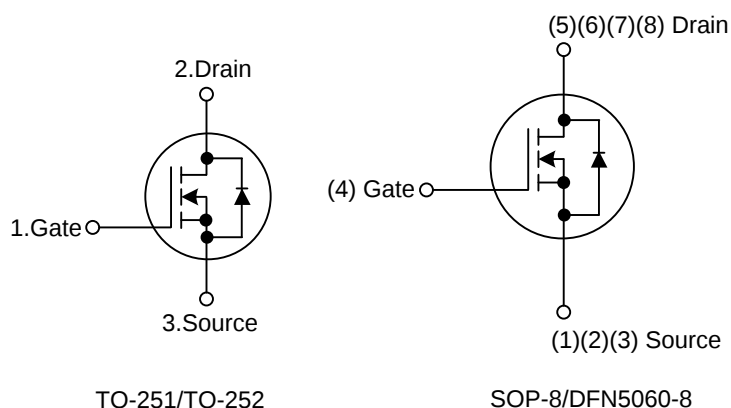
DESCRIPTION

The **UTT40N03** power MOSFET provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness

FEATURES

- * $R_{DS(ON)} \leq 17 \text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=20\text{A}$
- * $R_{DS(ON)} \leq 23 \text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=16\text{A}$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT40N03L-TM3-T	UTT40N03G-TM3-T	TO-251	G	D	S	-	-	-	-	-	Tube
UTT40N03L-TN3-R	UTT40N03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UTT40N03L-S08-R	UTT40N03G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel
UTT40N03L-K08-5060-R	UTT40N03G-K08-5060-R	DFN5060-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTT40N03G-TM3-T (1) Packing Type (2) Package Type (3) Green Package		(1) T: Tube, R: Tape Reel (2) TM3: TO-251, TN3: TO-252, S08: SOP-8 K08-5060: DFN5060-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

PACKAGE	MARKING
TO-251 TO-252	UTC UTT40N03 □□□□□□ Lot Code ← → Date Code 1 L: Lead Free G: Halogen Free
SOP-8	8 7 6 5 UTC □□□□ UTT40N03 □ □ ● 1 2 3 4 → Date Code L: Lead Free G: Halogen Free → Lot Code
DFN5060-8	UTC UTT 40N03 ● □□□□□□ Lot Code ← → Date Code

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current	Continuous	I _D	40	A
	Pulsed (Note 1)	I _{DM}	160	A
Power Dissipation	TO-251/TO-252	P _D	50	W
	SOP-8		1.6	W
	DFN5060-8		21	W
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-55 ~ +150	°C

Note: 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-251/TO-252	θ _{JA}	50	°C/W
	SOP-8		90	°C/W
	DFN5060-8		65	°C/W
Junction to Case (Note)	TO-251/TO-252	θ _{JC}	2.5	°C/W
	SOP-8		78	°C/W
	DFN5060-8		6	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

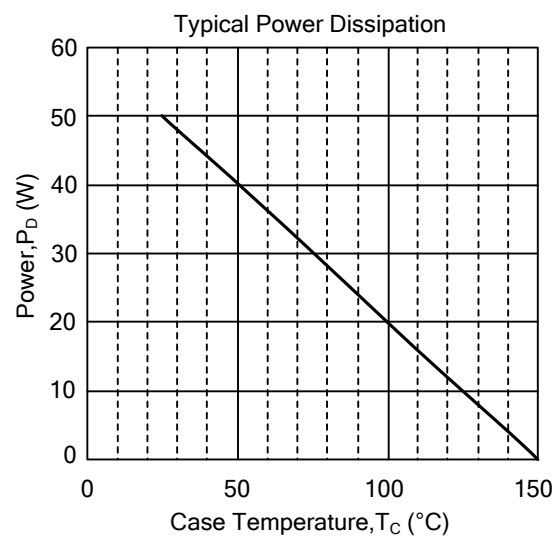
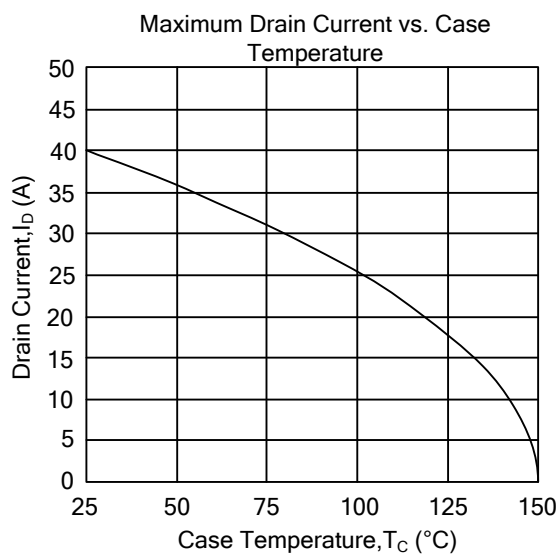
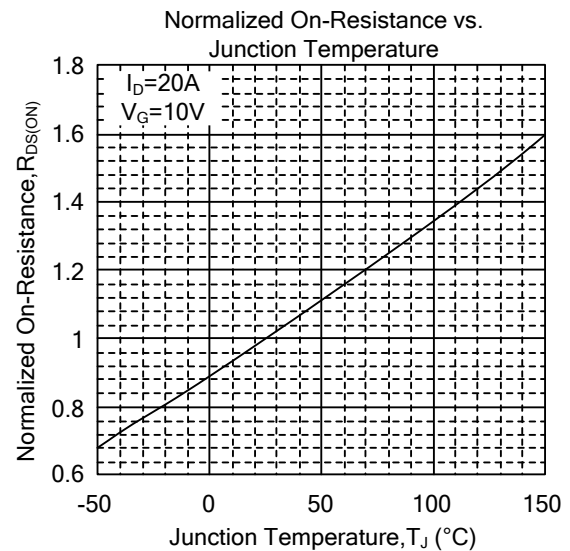
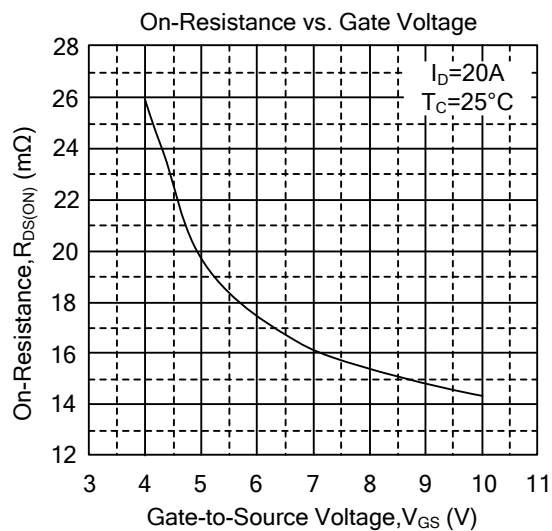
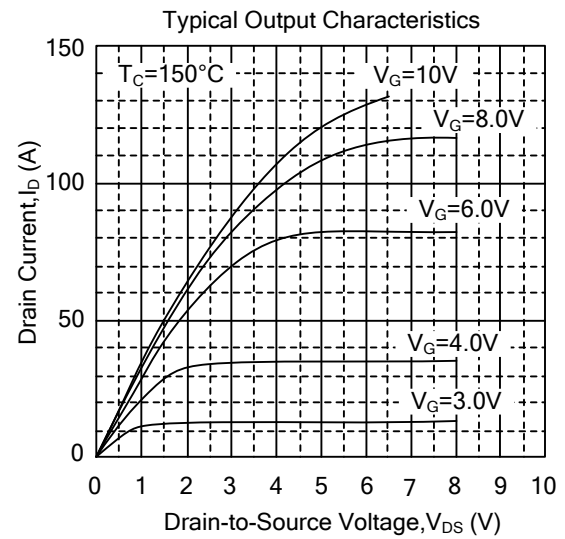
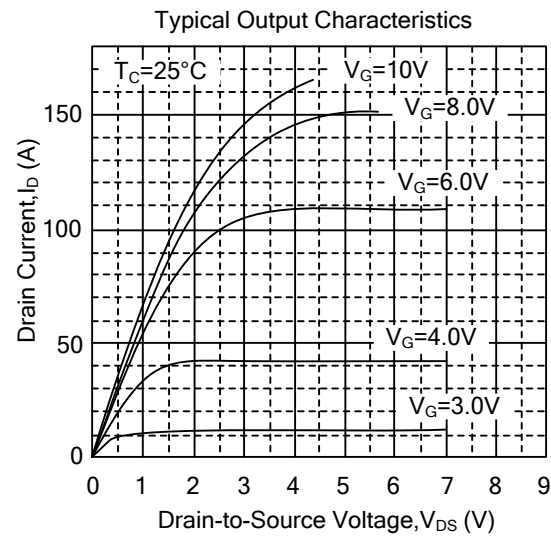
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	30			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =30 V, V _{GS} =0 V, T _J =25°C			1	μA
Gate- Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V			+100	nA
	Reverse		V _{GS} =-20V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =20A		14	17	mΩ
			V _{GS} =4.5V, I _D =16A		20	23	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		800		pF
Output Capacitance		C _{OSS}			380		pF
Reverse Transfer Capacitance		C _{RSS}			133		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{DS} =24V, V _{GS} =5V, I _D =20A		17		nC
Gate to Source Charge		Q _{GS}			3		nC
Gate to Drain Charge		Q _{GD}			10		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DS} =15V, I _D =20A, V _{GS} =10V, R _G =3.3Ω, R _L =0.75Ω		7.2		ns
Rise Time		t _R			60		ns
Turn-OFF Delay Time		t _{D(OFF)}			22.5		ns
Fall-Time		t _F			10		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S	V _D =V _G =0V, V _S =1.3V			40	A
Maximum Body-Diode Pulsed Current		I _{SM}				160	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =40A, V _{GS} =0V, T _J =25°C			1.3	V

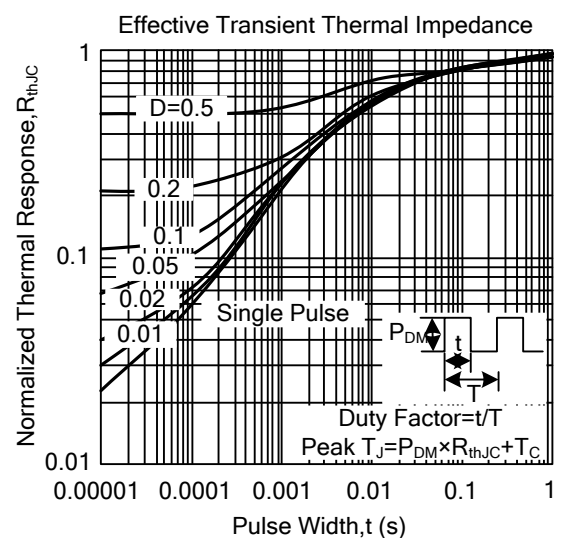
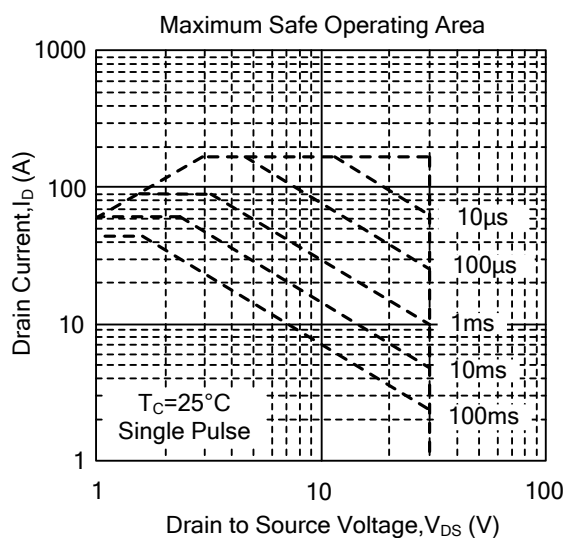
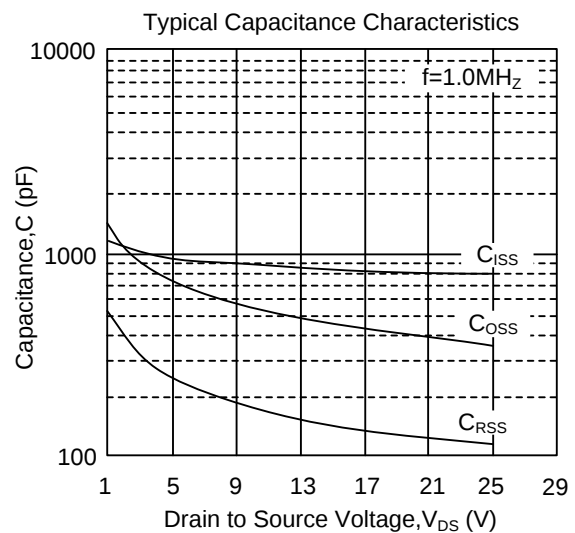
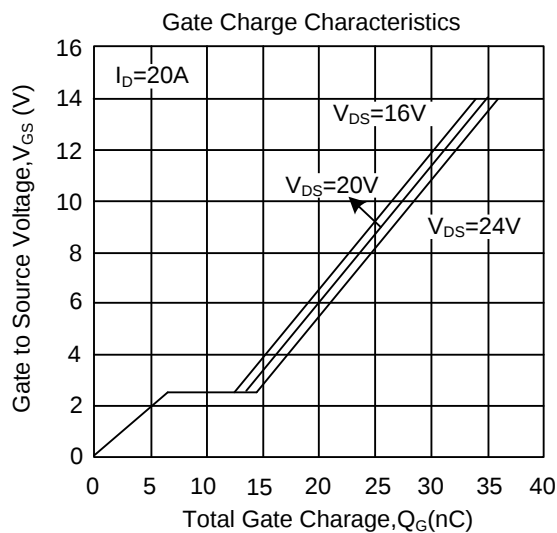
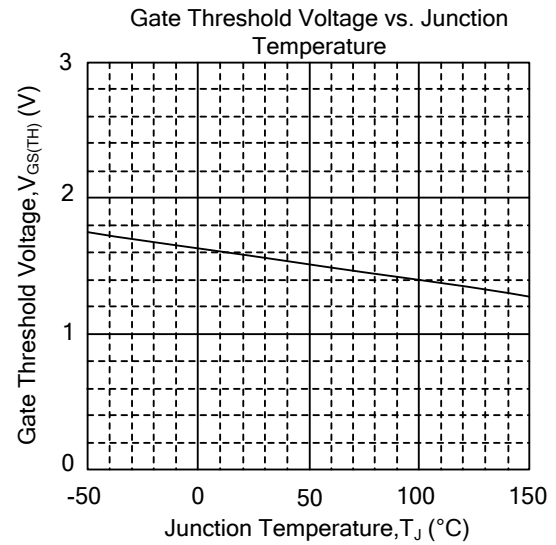
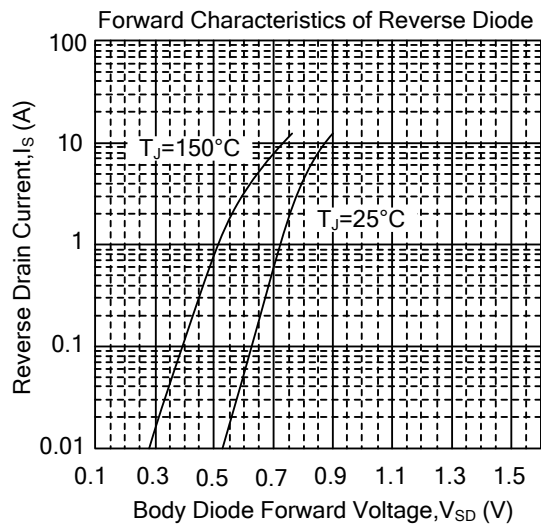
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



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