



UTT40N03

Power MOSFET

40A, 30V N-CHANNEL POWER MOSFET

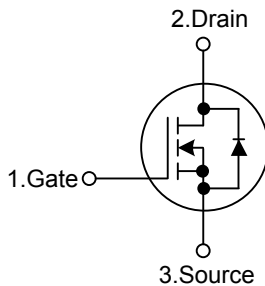
DESCRIPTION

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

FEATURES

- * $R_{DS(ON)} = 17m\Omega @V_{GS} = 10V$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL

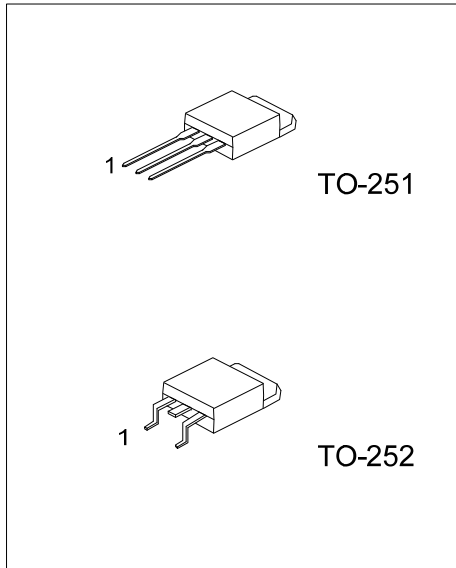


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
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-TN3-T	UTT40N03G-TN3-T	TO-252	G	D	S	Tube

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

<p>UTT40N03L-TM3-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel, T: Tube (2) TM3: TO-251, TN3: TO-252 (3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$, 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		P_D	50	W
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55~+150	$^{\circ}\text{C}$

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

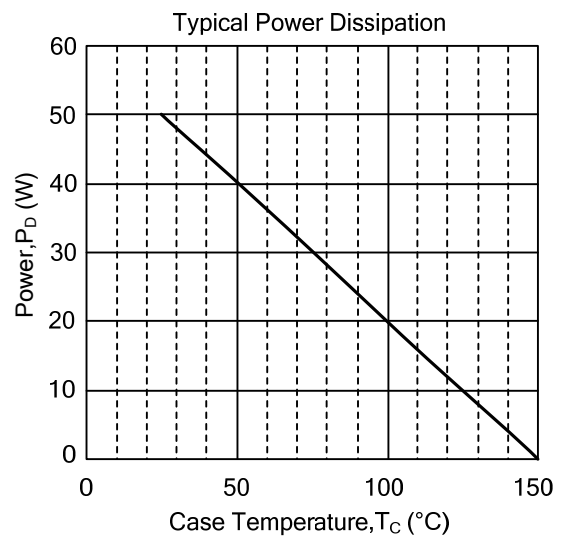
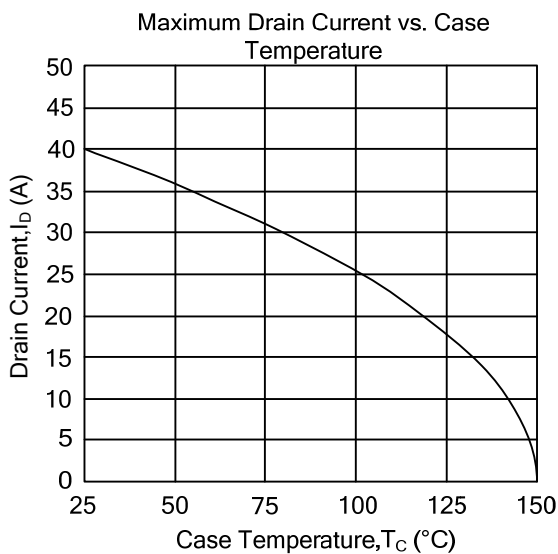
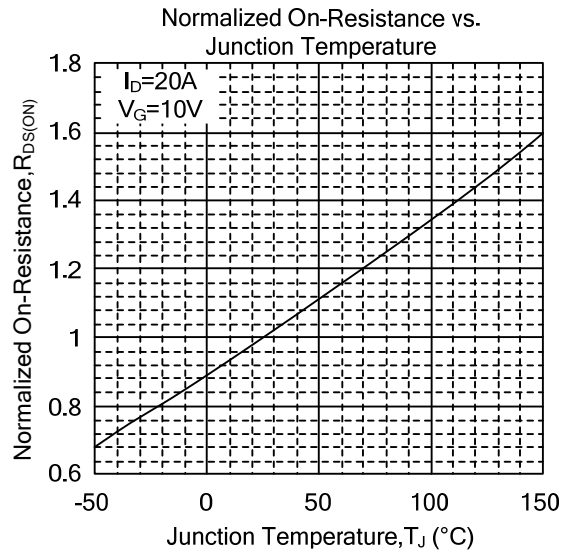
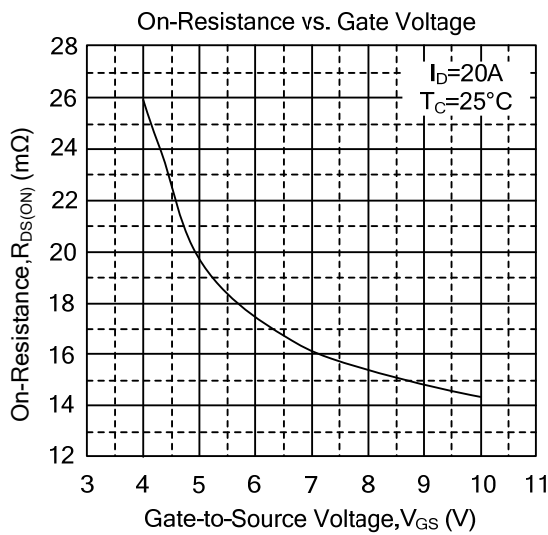
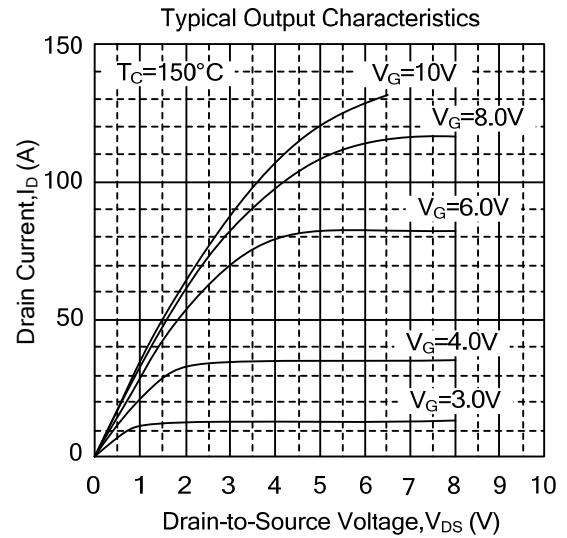
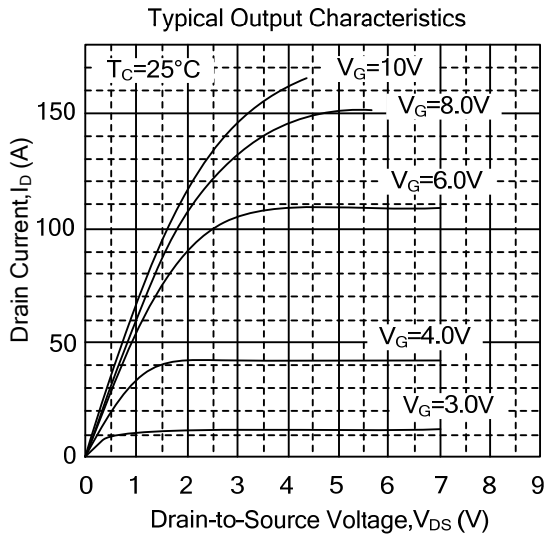
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient		θ_{JA}	62	$^{\circ}\text{C/W}$
Junction to Case		θ_{JC}	2.5	$^{\circ}\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

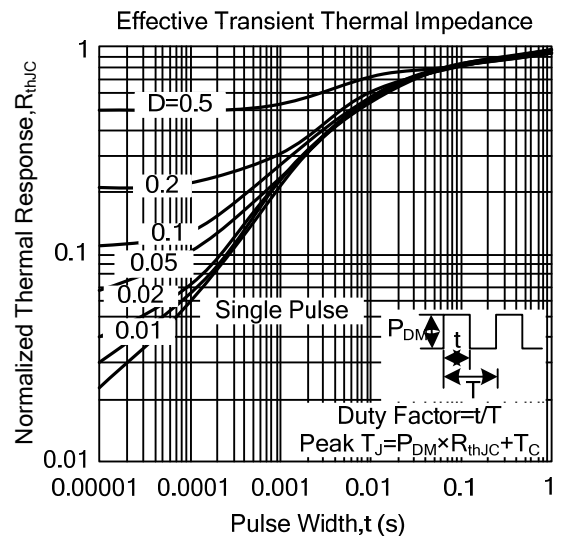
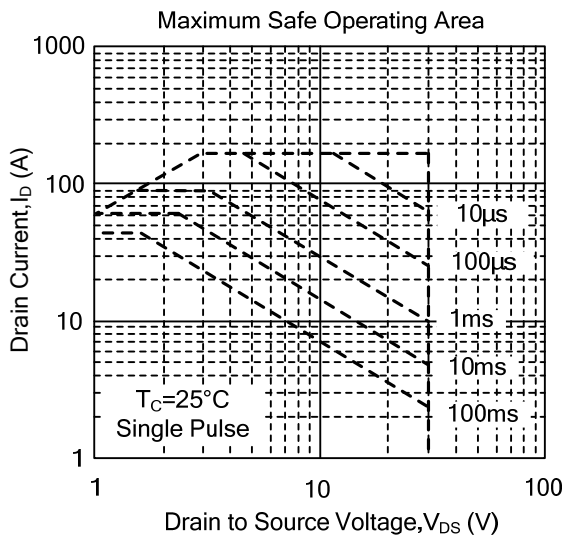
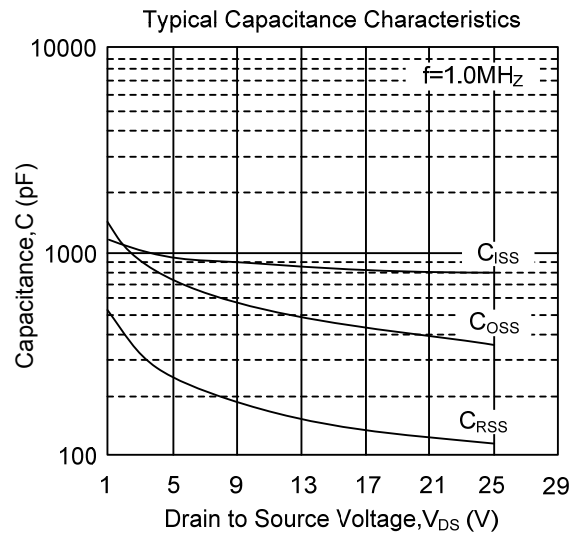
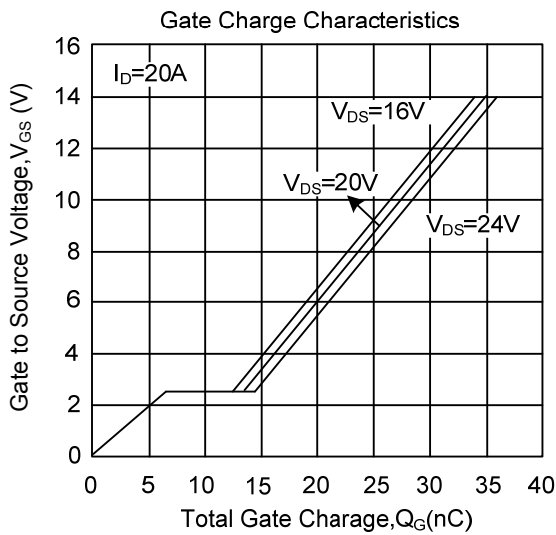
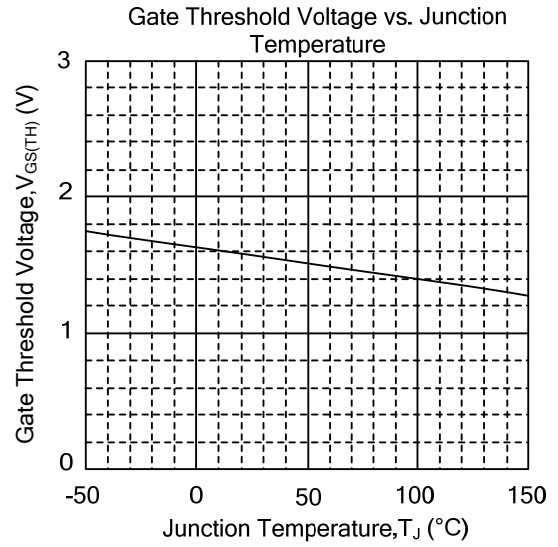
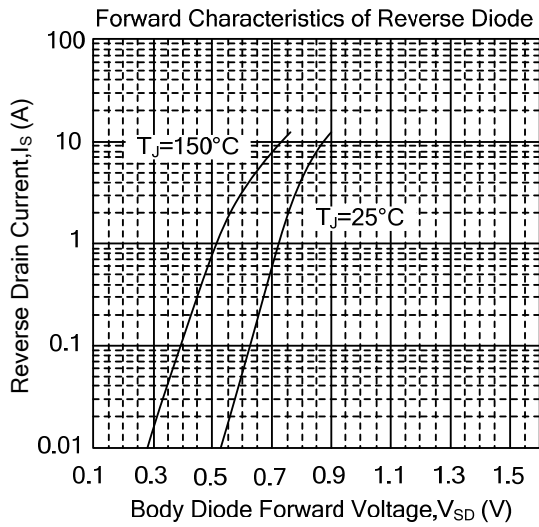
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	30			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$, $T_J=25^{\circ}\text{C}$			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1		3	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=20\text{A}$		14	17	$\text{m}\Omega$
			$V_{GS}=4.5\text{V}$, $I_D=16\text{A}$		20	23	$\text{m}\Omega$
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$, $f=1.0\text{MHz}$		800		pF
Output Capacitance		C_{OSS}			380		pF
Reverse Transfer Capacitance		C_{RSS}			133		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{DS}=24\text{V}$, $V_{GS}=5\text{V}$, $I_D=20\text{A}$		17		nC
Gate to Source Charge		Q_{GS}			3		nC
Gate to Drain Charge		Q_{GD}			10		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DS}=15\text{V}$, $I_D=20\text{A}$, $V_{GS}=10\text{V}$, $R_G=3.3\Omega$, $R_L=0.75\Omega$		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	$V_D=V_G=0\text{V}$, $V_S=1.3\text{V}$			40	A
Maximum Body-Diode Pulsed Current		I_{SM}				160	A
Drain-Source Diode Forward Voltage		V_{SD}	$T_J=25^{\circ}\text{C}$, $I_S=40\text{A}$, $V_{GS}=0\text{V}$			1.3	V

Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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