

40 Amps, 30 Volts N-CHANNEL POWER MOSFET

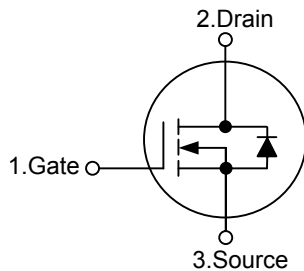
DESCRIPTION

The **UT40N03** power MOSFET provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness

FEATURES

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

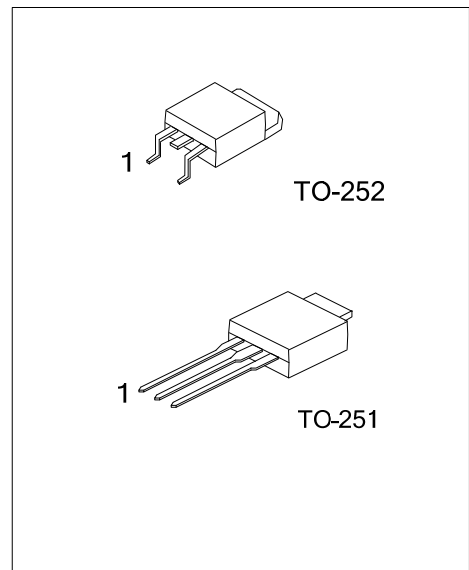
SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT40N03L-TN3-R	UT40N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT40N03L-TM3-T	UT40N03G-TM3-T	TO-251	G	D	S	Tube

<p>UT40N03L-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TN3: TO-252, TM3: TO-251</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	40	A
Pulsed Drain Current (Note 1)	I _{DM}	169	A
Total Power Dissipation	TO-251	50	W
	TO-252	50	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	62	°C/W
	TO-252	62	°C/W
Junction to Case	TO-251	2.5	°C/W
	TO-252	2.5	°C/W

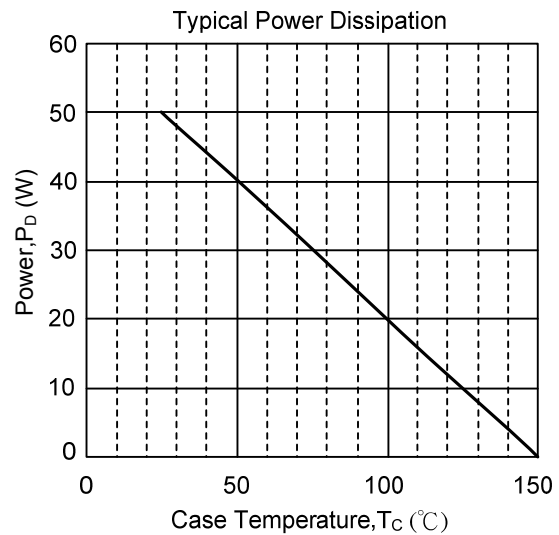
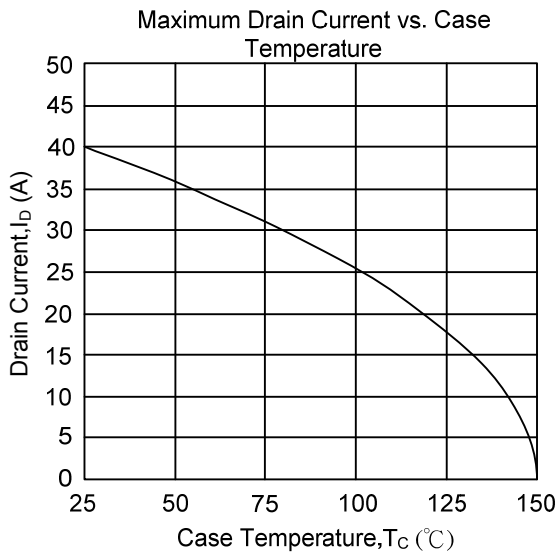
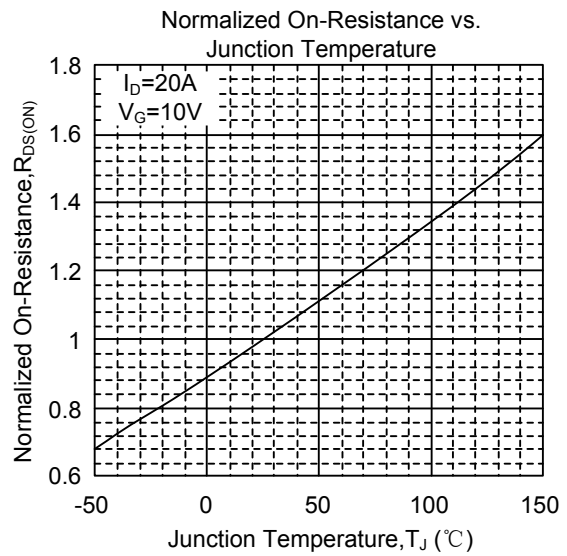
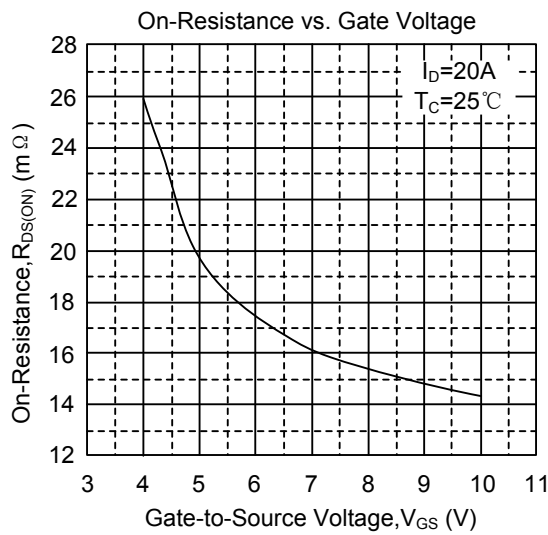
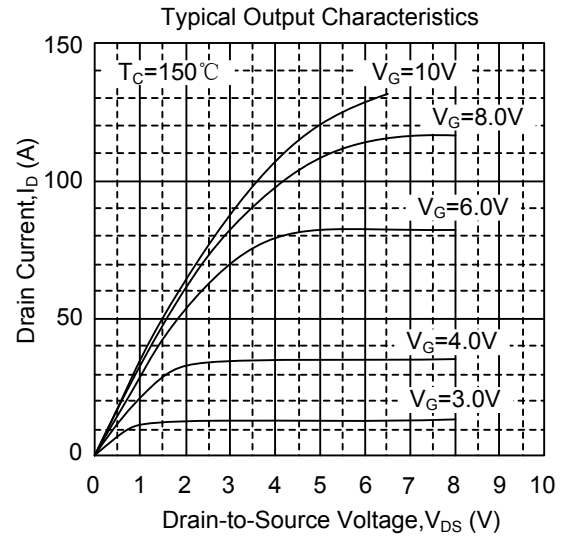
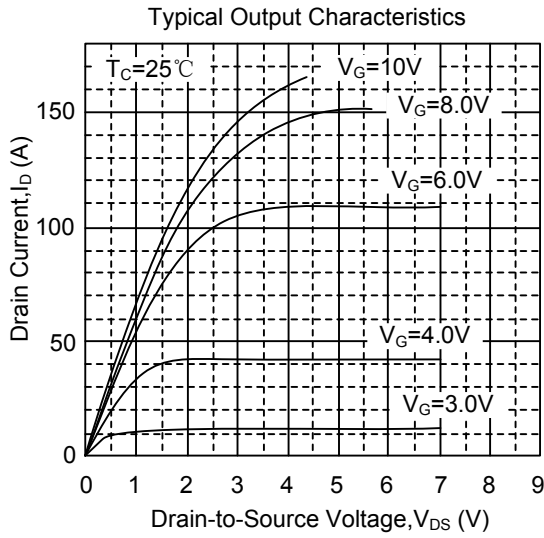
■ ELECTRICAL CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	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	I _{GSS}	V _{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	1		3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =20 A		14	17	mΩ
		V _{GS} =4.5 V, I _D =16 A		20	23	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25 V, V _{GS} =0V, f=1.0MHz		800		pF
Output Capacitance	C _{OSS}			380		
Reverse Transfer Capacitance	C _{RSS}			133		
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =15 V, I _D =20 A, V _{GS} =10V, R _G =3.3 Ω, R _L =0.75 Ω		7.2		ns
Turn-ON Rise Time	t _R			60		
Turn-OFF Delay Time	t _{D(OFF)}			22.5		
Turn-OFF Fall-Time	t _F			10		
Total Gate Charge	Q _G	V _{DS} =24V, V _{GS} =5 V, I _D =20 A		17		nC
Gate-Source Charge	Q _{GS}			3		
Gate-Drain Charge	Q _{GD}			10		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	T _J =25°C, I _S =40A, V _{GS} =0V			1.3	V
Maximum Continuous Drain-Source Diode Forward Current	I _S	V _D =V _G =0V, V _S =1.3V			40	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				169	

Notes: 1. Pulse width limited by T_{J(MAX)}

2. Pulse width ≤300us, duty cycle ≤2%.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)

