



**UT45N03**

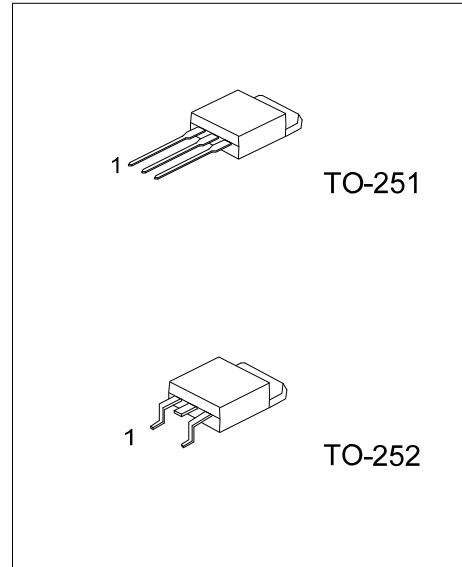
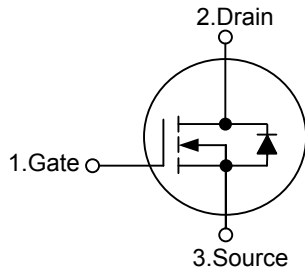
*Power MOSFET*

**40A, 25V N-CHANNEL  
POWER MOSFET**

■ **FEATURES**

- \*  $R_{DS(ON)} = 21m\Omega @V_{GS} = 10V$
- \* 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	
UT45N03L-TM3-R	UT45N03G-TM3-R	TO-251	G	D	S	Tube
UT45N03L-TN3-T	UT45N03G-TN3-T	TO-252	G	D	S	Tube
UT45N03L-TN3-R	UT45N03G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UT45N03L-TM3-T</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TM3: TO-251, TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	$V_{DSS}$	25	V
Gate-Source Voltage	$V_{GSS}$	±15	V
Continuous Drain Current	$I_D$	40	A
Pulsed Drain Current (Note 1)	$I_{DM}$	160	A
Power Dissipation	$P_D$	65	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	$\theta_{JA}$	50	°C/W
Junction to Case	$\theta_{JC}$	1.92	°C/W

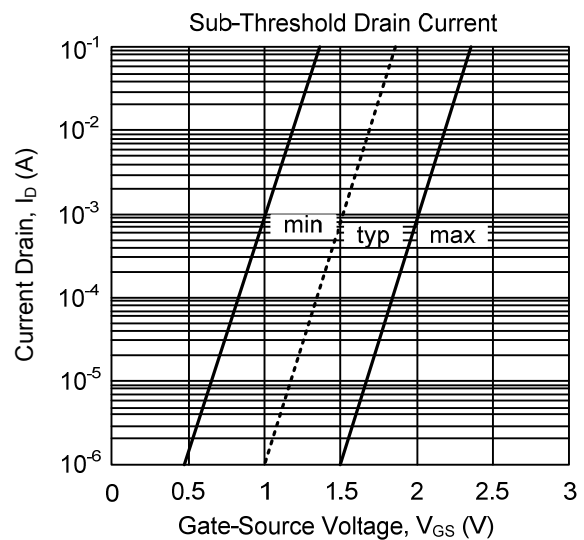
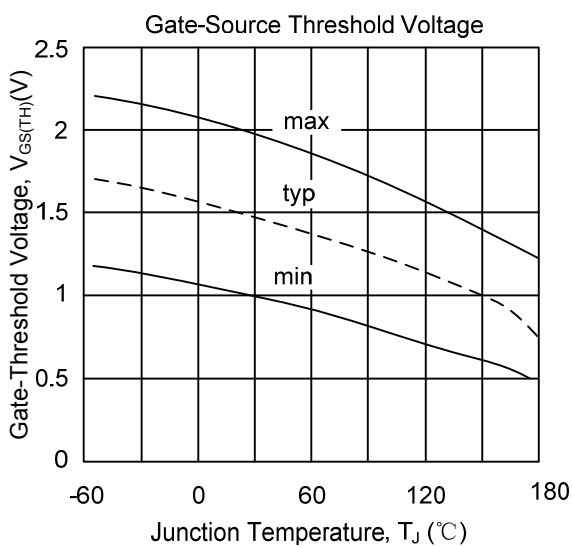
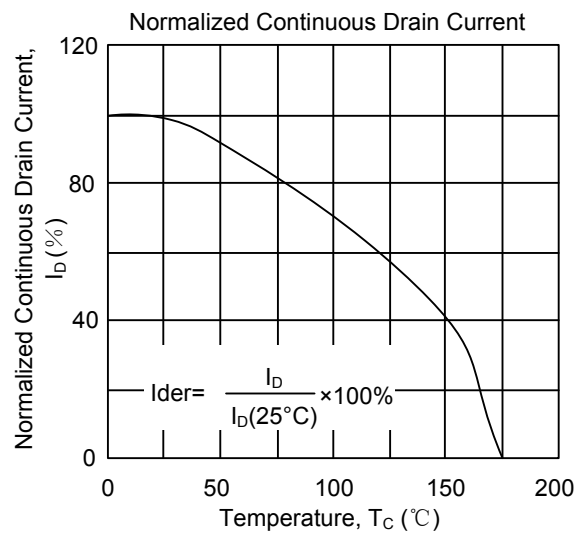
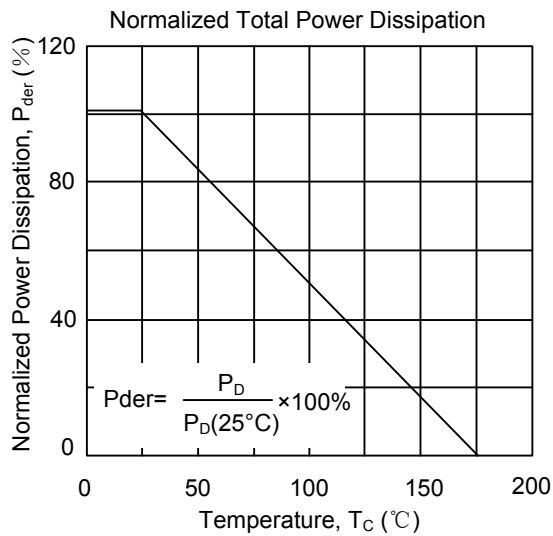
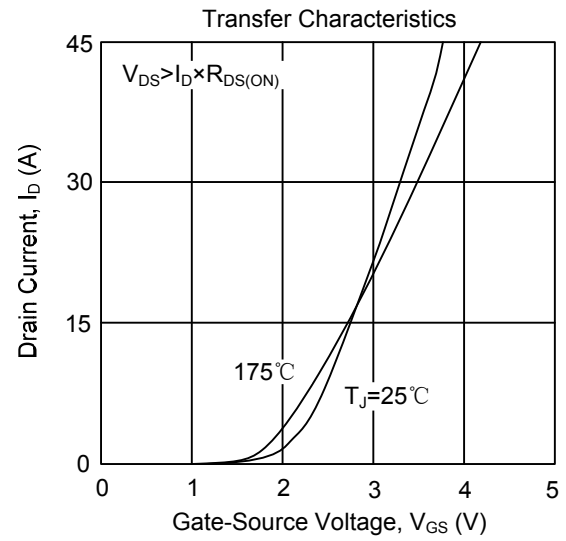
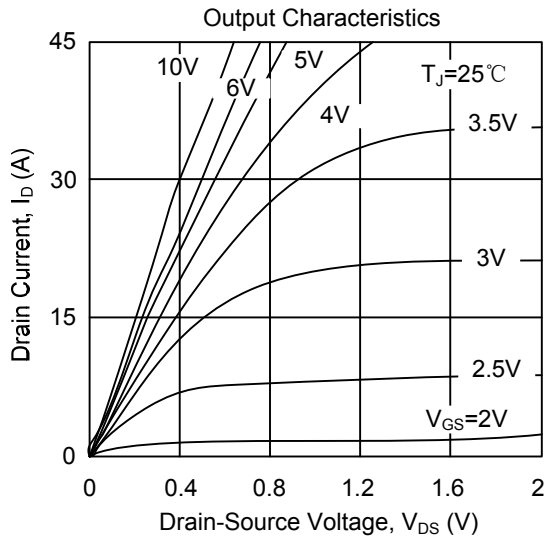
### ■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	25			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=25V, V_{GS}=0V$		0.05	10	$\mu A$
Drain-Source Breakdown Voltage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 5V$		10	100	nA
<b>ON CHARACTERISTICS</b>						
Gate-Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=1mA$	1	1.5	2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=5V, I_D=25A$		17.5	24	m $\Omega$
		$V_{GS}=10V, I_D=25A$		13	21	
		$V_{GS}=3.5V, I_D=5.2A$		22	40	
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		700		pF
Output Capacitance	$C_{OSS}$			290		
Reverse Transfer Capacitance	$C_{RSS}$			200		
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10V, V_{DD}=15V, I_D=15A, R_G=6\Omega$		10	20	ns
Turn-ON Rise Time	$t_R$			60	90	
Turn-OFF Delay Time	$t_{D(OFF)}$			35	60	
Turn-OFF Fall-Time	$t_F$			40	60	
Total Gate Charge	$Q_G$	$V_{DD}=24V, V_{GS}=5V, I_D=40A$		19		nC
Gate-to-Source Charge	$Q_{GS}$			5		
Gate-to-Drain Charge	$Q_{GD}$			8	11	
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=25A, V_{GS}=0V$		0.95	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				40	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$				160	

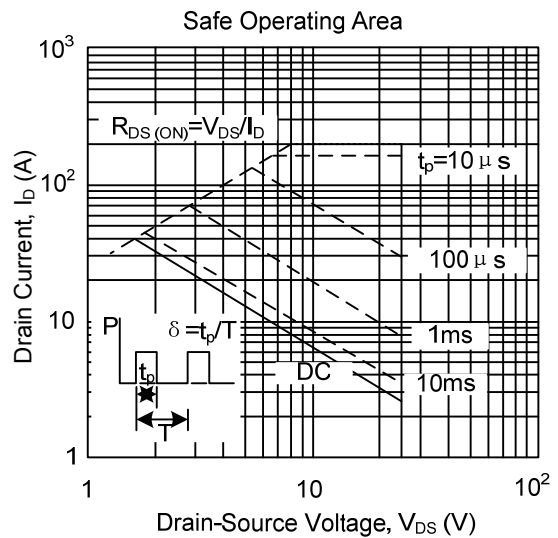
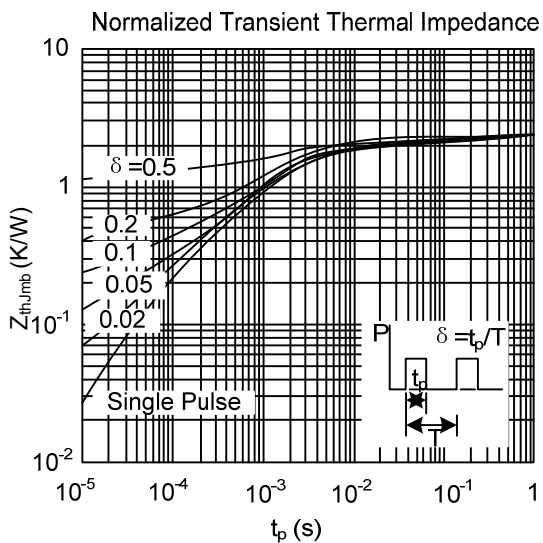
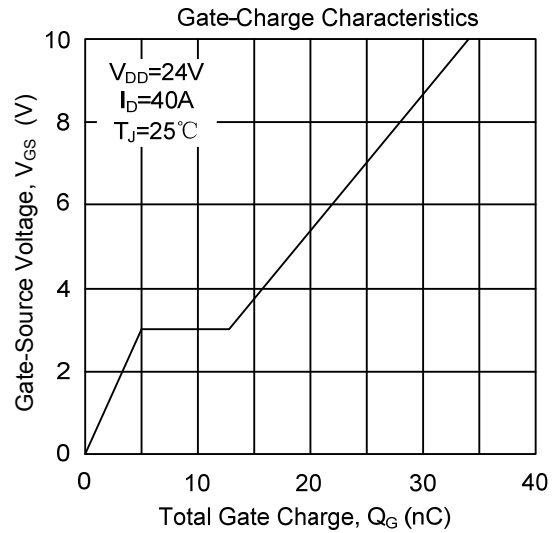
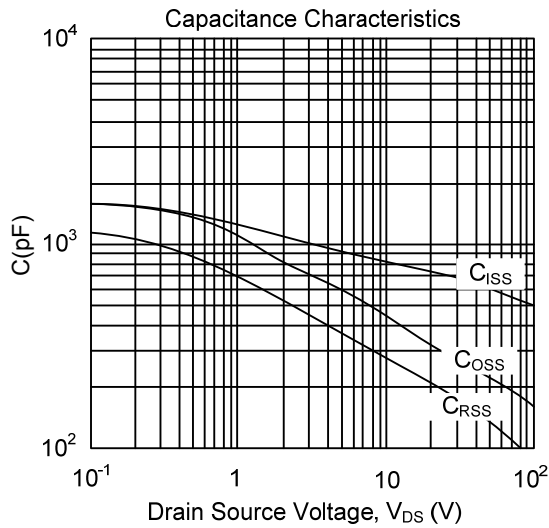
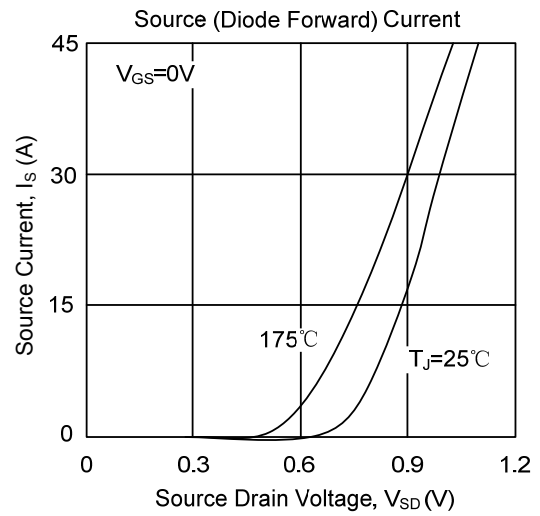
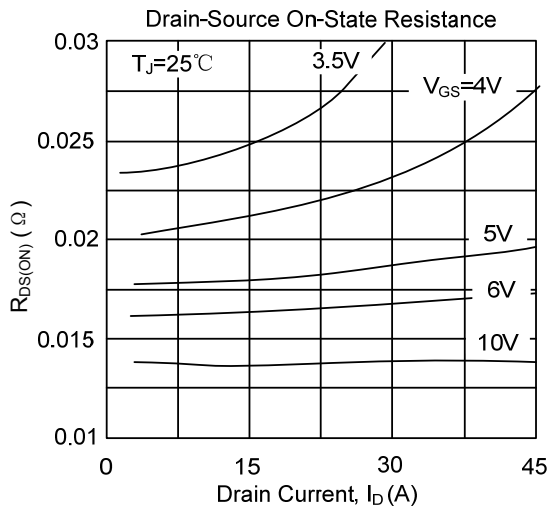
Notes: 1. Pulse width limited by  $T_{J(MAX)}$

2. Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

### TYPICAL CHARACTERISTICS



### TYPICAL CHARACTERISTICS(Cont.)



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