



UT45N03

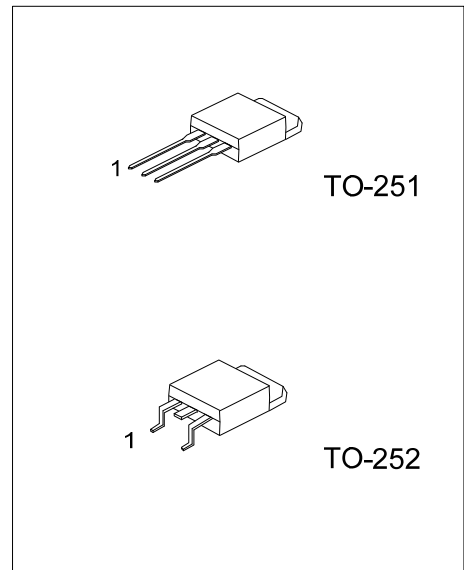
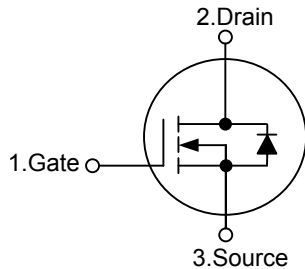
Power MOSFET

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>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</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	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}C$

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}	50	$^{\circ}C/W$
Junction to Case	θ_{JC}	1.92	$^{\circ}C/W$

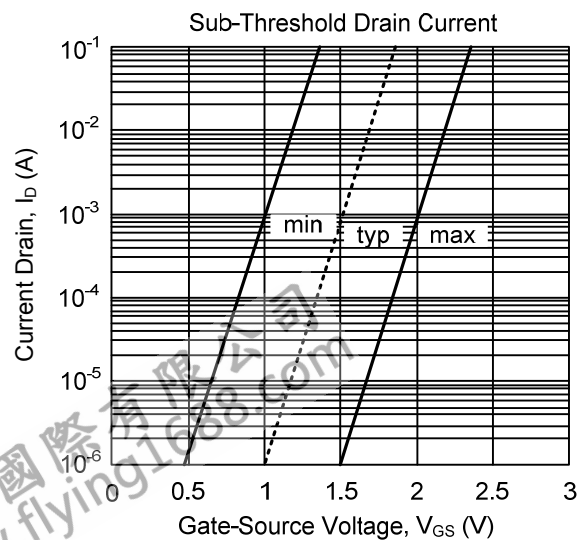
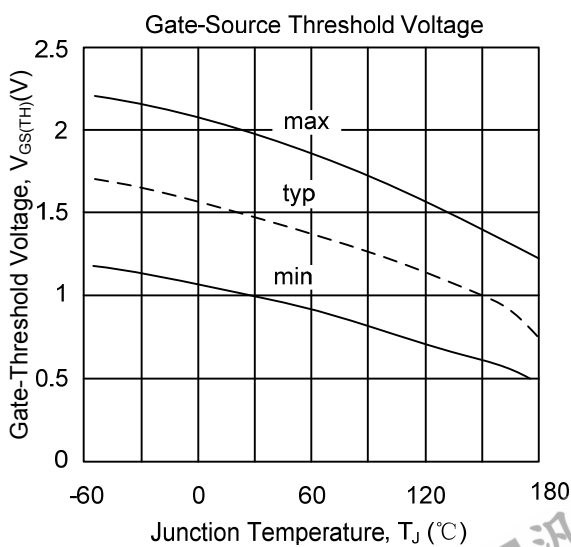
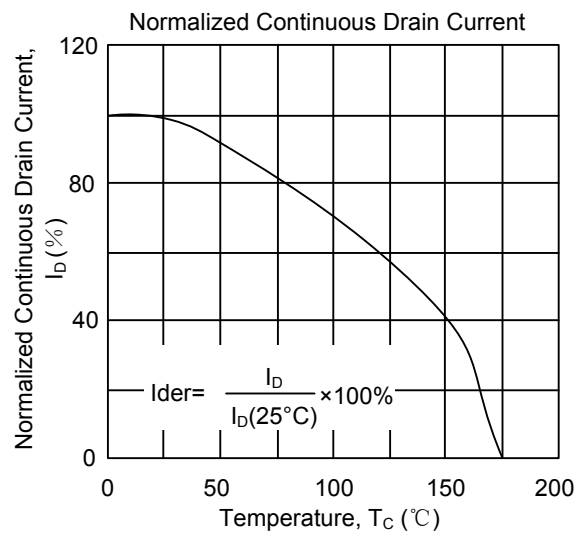
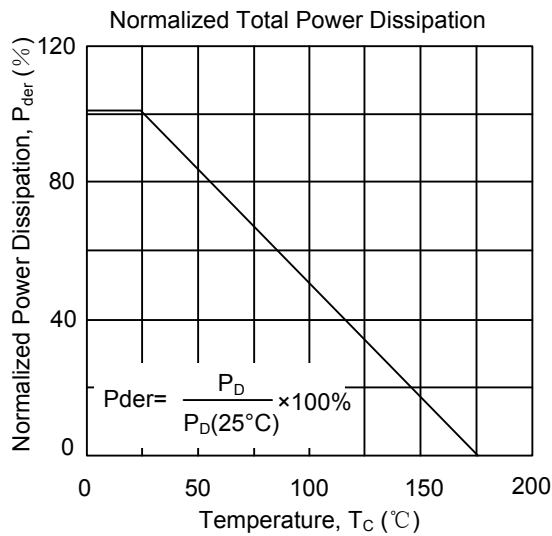
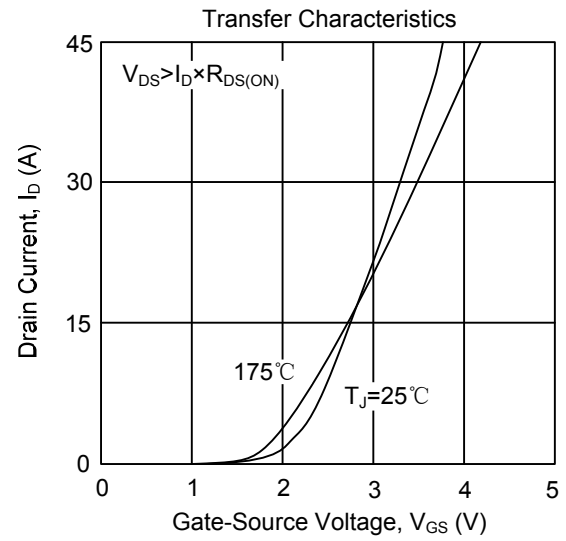
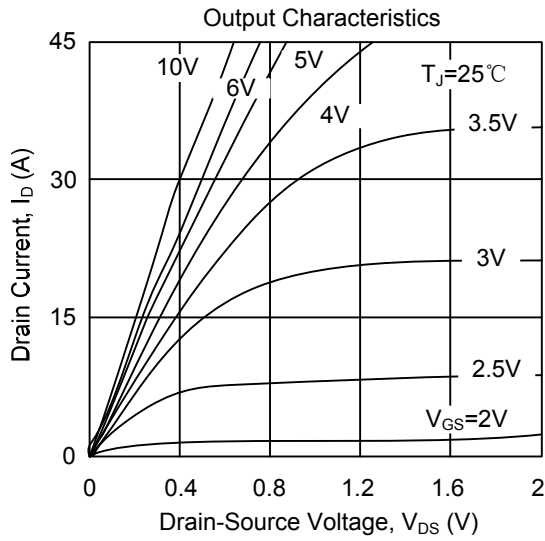
■ ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}C$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
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	μA
Drain-Source Breakdown Voltage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 5V$		10	100	nA
ON CHARACTERISTICS						
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 Ω
		$V_{GS}=10V, I_D=25A$		13	21	
		$V_{GS}=3.5V, I_D=5.2A$		22	40	
DYNAMIC CHARACTERISTICS						
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		
SWITCHING PARAMETERS						
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	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
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	

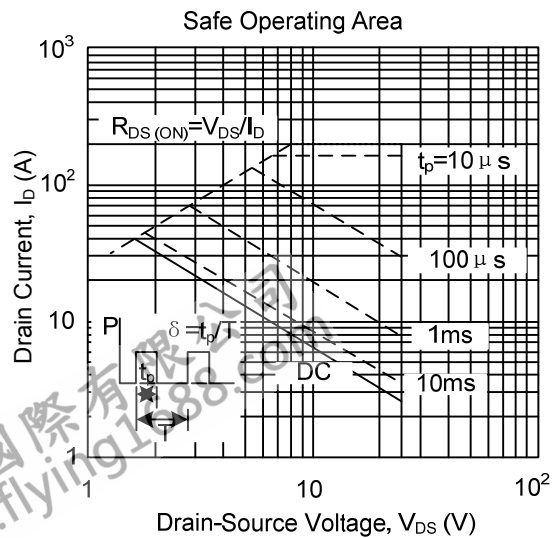
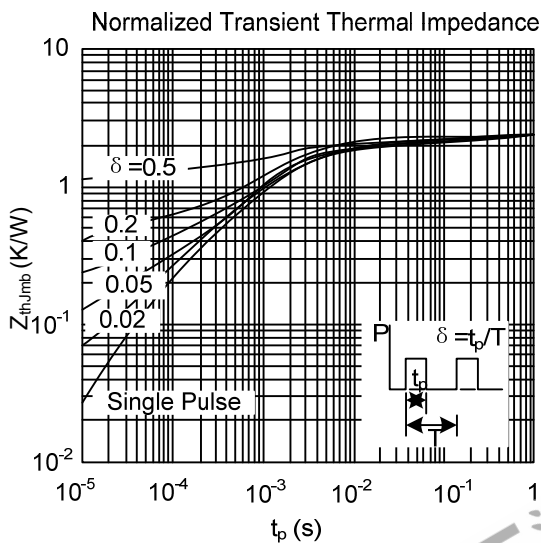
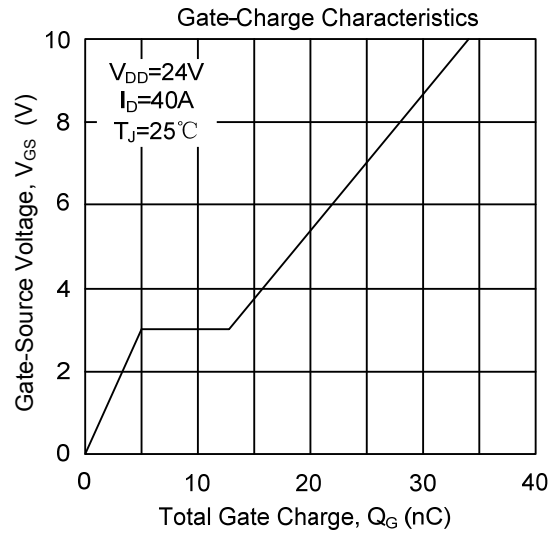
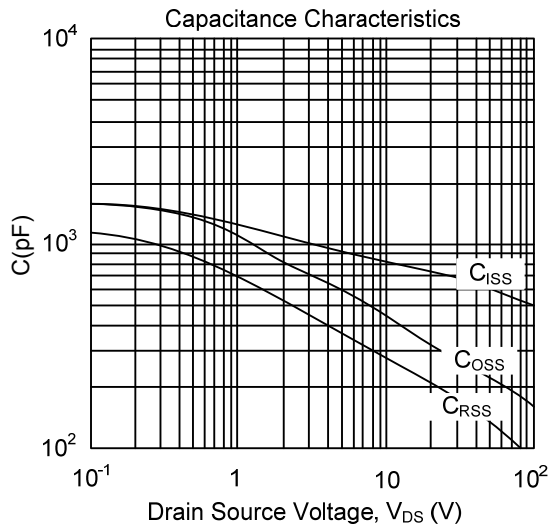
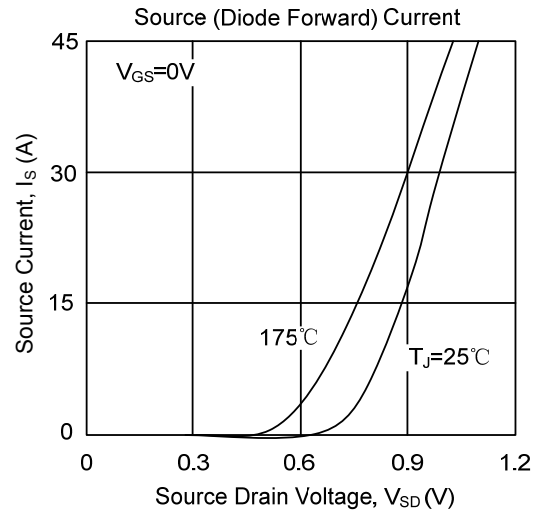
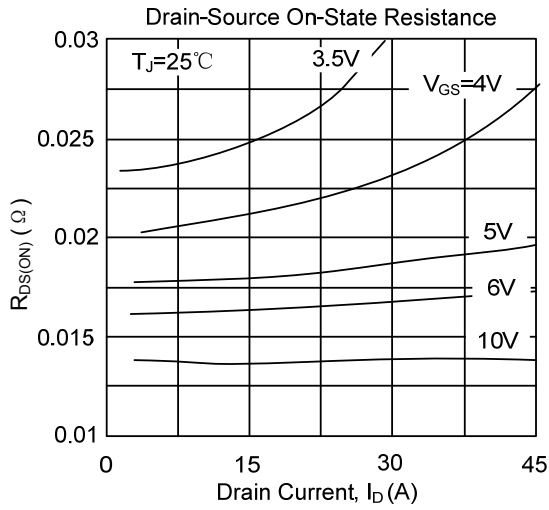
Notes: 1. Pulse width limited by $T_{J(MAX)}$

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

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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