



# UT40N03T

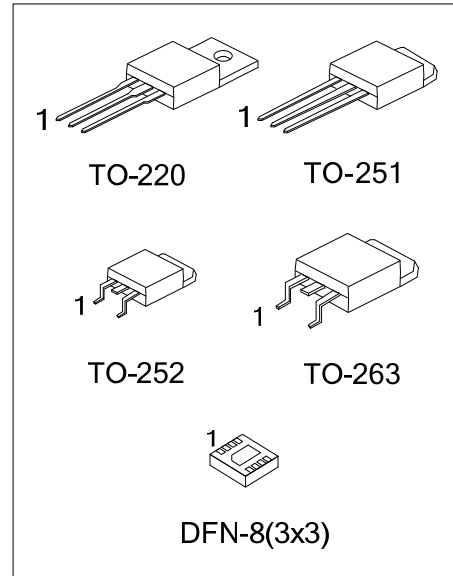
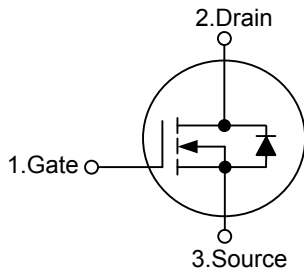
**Power MOSFET**

30V, 28A N-CHANNEL  
ENHANCEMENT MODE  
POWER MOSFET

■ FEATURES

- \*  $R_{DS(ON)} < 25m\Omega @ V_{GS} = 10V$
- \* 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	4	5	6	7	8		
UT40N03TL-TA3-T	UT40N03TG-TA3-T	TO-220	G	D	S	-	-	-	-	-	-	Tube
UT40N03TL-TM3-T	UT40N03TG-TM3-T	TO-251	G	D	S	-	-	-	-	-	-	Tube
UT40N03TL-TN3-R	UT40N03TG-TN3-R	TO-252	G	D	S	-	-	-	-	-	-	Tape Reel
UT40N03TL-TQ2-R	UT40N03TG-TQ2-R	TO-263	G	D	S	-	-	-	-	-	-	Tape Reel
UT40N03TL-TQ2-T	UT40N03TG-TQ2-T	TO-263	G	D	S	-	-	-	-	-	-	Tube
-	UT40N03TG-K08-3030-R	DFN-8(3x3)	S	S	S	G	D	D	D	D	D	Tape Reel

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

<p>UT40N03TL-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TA3: TO-220, TM3: TO-251, TN3:TO-252, TQ2: TO-263, K08-3030: DFN-8(3x3)</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING

TO-220 / TO-251 / TO-252 / TO-263	DFN-8(3x3)

### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	30	V
Gate-Source Voltage		$V_{GSS}$	$\pm 25$	V
Continuous Drain Current		$I_D$	28	A
Pulsed Drain Current		$I_{DM}$	95	A
Total Power Dissipation	TO-220/TO-263	$P_D$	31.25	W
	TO-251/ TO-252 DFN-8(3×3)		41	
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

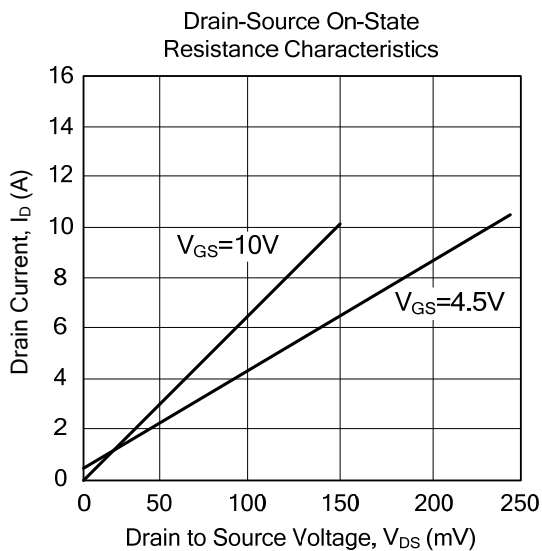
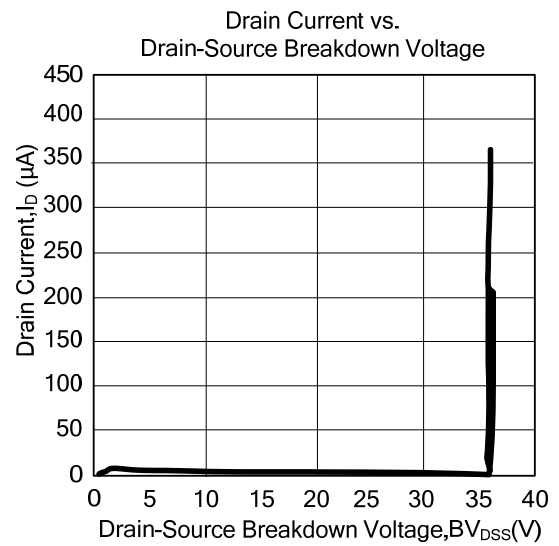
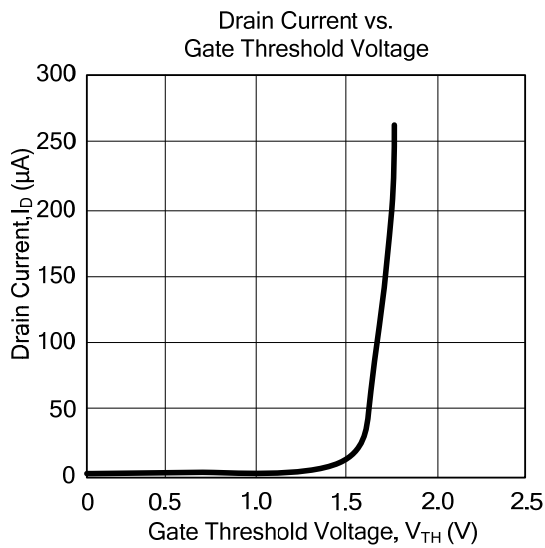
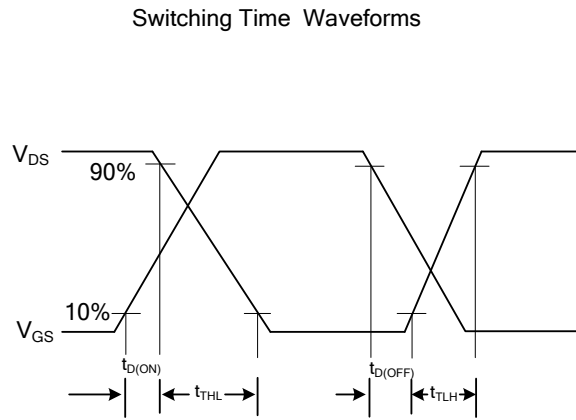
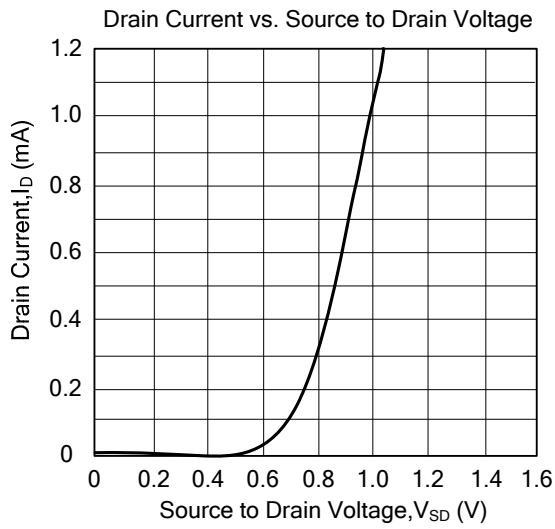
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-263	$\theta_{JA}$	62	°C/W
	TO-251/ TO-252		60	
	DFN-8(3×3)		65	
Junction to Case	TO-220/TO-263	$\theta_{JC}$	4	°C/W
	TO-251/ TO-252		3	
	DFN-8(3×3)			

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub> =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA	30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C			1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±25 V			±100	nA
Breakdown Voltage Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25°C, I <sub>D</sub> =1mA		0.032		V/°C
<b>ON CHARACTERISTICS</b>						
Gate-Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		3	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10 V, I <sub>D</sub> =18 A			25	mΩ
		V <sub>GS</sub> =4.5 V, I <sub>D</sub> =14 A			45	
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1.0MHz		655		pF
Output Capacitance	C <sub>OSS</sub>			145		
Reverse Transfer Capacitance	C <sub>RSS</sub>			95		
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>D</sub> =0.83Ω, I <sub>D</sub> =18 A, R <sub>G</sub> =3.3 Ω		6		ns
Turn-ON Rise Time	t <sub>R</sub>			62		
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			16		
Turn-OFF Fall-Time	t <sub>F</sub>			4.4		
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =18A		8.8		nC
Gate-Source Charge	Q <sub>GS</sub>			2.5		
Gate-Drain Charge	Q <sub>GD</sub>			5.8		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =28 A, V <sub>GS</sub> =0V			1.3	V
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>	V <sub>D</sub> =V <sub>G</sub> =0V , V <sub>S</sub> =1.3V			28	A
Maximum Pulsed Drain-Source Diode Forward Current	I <sub>SM</sub>				95	A

- Notes: 1. Pulse width limited by T<sub>J(MAX)</sub>.  
2. Pulse width ≤ 300us, duty cycle ≤ 2%.

## TYPICAL CHARACTERISTICS



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