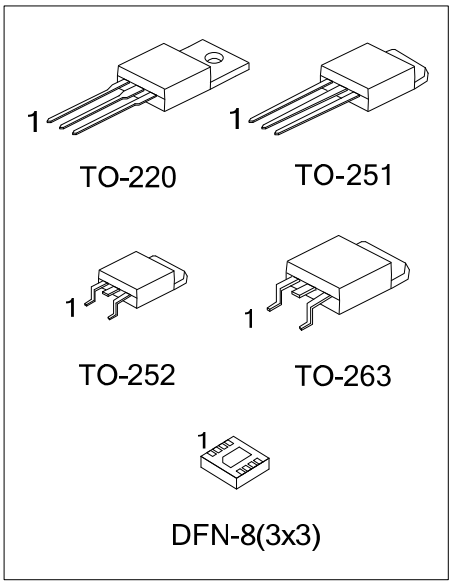
UT40N03T

Power MOSFET

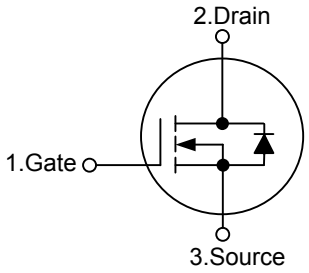
30V, 28A N-CHANNEL ENHANCEMENT MODE POWER MOSFET



■ FEATURES

* $R_{DS(ON)}$ < 25mΩ @V_{GS} = 10 V
* Low capacitance
* Optimized gate charge
* Fast switching capability
* Avalanche energy specified

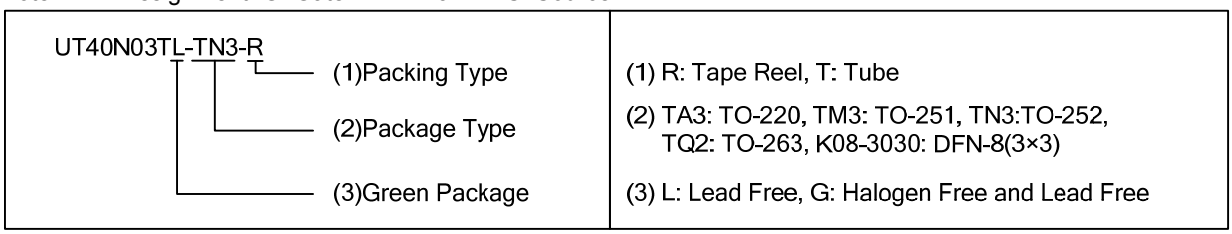
■ SYMBOL



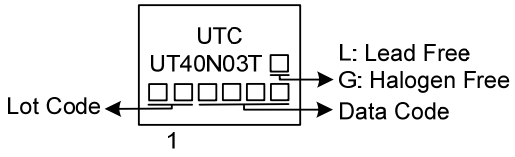
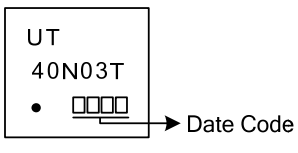
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	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(3×3)	S	S	S	G	D	D	D	D	Tape Reel

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



■ MARKING

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

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±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	θ_{JA}	62	°C/W
	TO-251/ TO-252		60	
	DFN-8(3×3)		65	
Junction to Case	TO-220/TO-263	θ_{JC}	4	°C/W
	TO-251/ TO-252 DFN-8(3×3)		3	

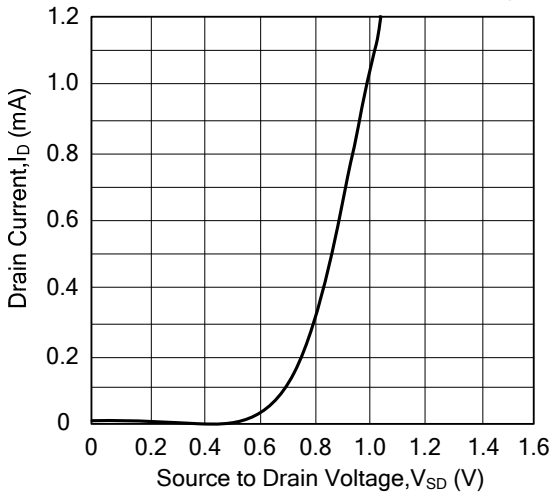
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0 V, I_D =250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V,V_{GS} =0V,T_J =25°C			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} = ±25 V			±100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, I_D=1mA		0.032		V/°C
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 =18 A			25	mΩ
		V_{GS} =4.5 V, I_D =14 A			45	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=25V, V_{GS} =0V, f=1.0MHz		655		pF
Output Capacitance	C_{OSS}			145		
Reverse Transfer Capacitance	C_{RSS}			95		
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS}=10V,V_{DS}=15V, R_D=0.83Ω, I_D =18 A, R_G =3.3 Ω		6		ns
Turn-ON Rise Time	t_R			62		
Turn-OFF Delay Time	$t_{D(OFF)}$			16		
Turn-OFF Fall-Time	t_F			4.4		
Total Gate Charge	Q_G	V_{DS} =20V, V_{GS} =4.5V, I_D =18A		8.8		nC
Gate-Source Charge	Q_{GS}			2.5		
Gate-Drain Charge	Q_{GD}			5.8		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=28 A, V_{GS}=0V			1.3	V
Maximum Continuous Drain-Source Diode Forward Current	I_S	V_D=V_G=0V , V_S=1.3V			28	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				95	A

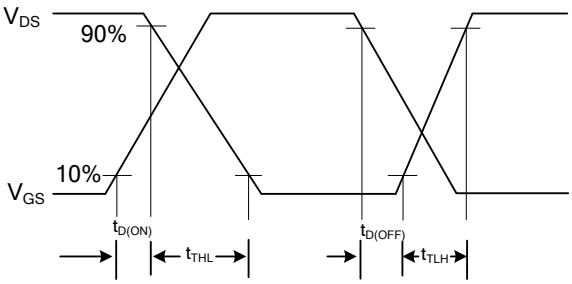
Notes: 1. Pulse width limited by $T_{J(MAX)}$.
2. Pulse width ≤ 300us, duty cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS

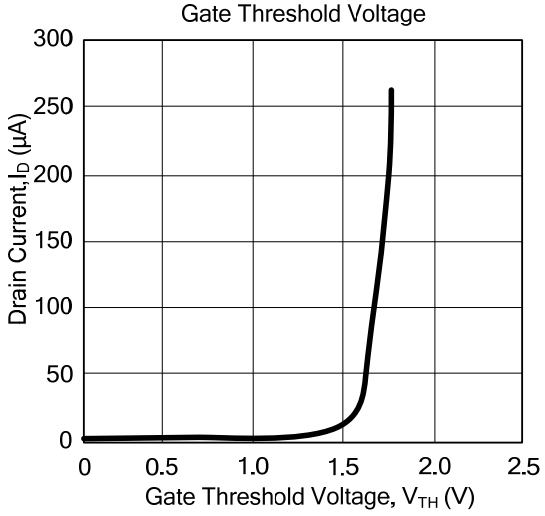
Drain Current vs. Source to Drain Voltage



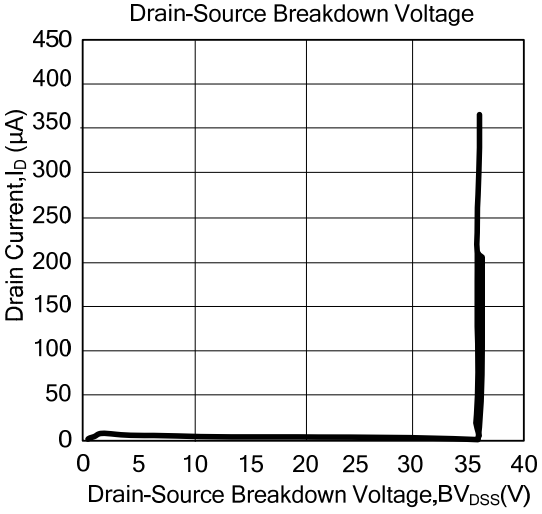
Switching Time Waveforms



Drain Current vs.
Gate Threshold Voltage



Drain Current vs.
Drain-Source Breakdown Voltage



Drain-Source On-State
Resistance Characteristics