



UT75N03

Preliminary

Power MOSFET

75A, 30V N-CHANNEL POWER MOSFET

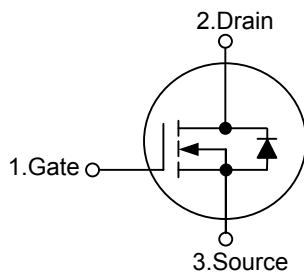
DESCRIPTION

The UTC **UT75N03** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} < 7m\Omega @ V_{GS}=10V$
- * $R_{DS(ON)} < 10m\Omega @ V_{GS}=4.5V$

SYMBOL

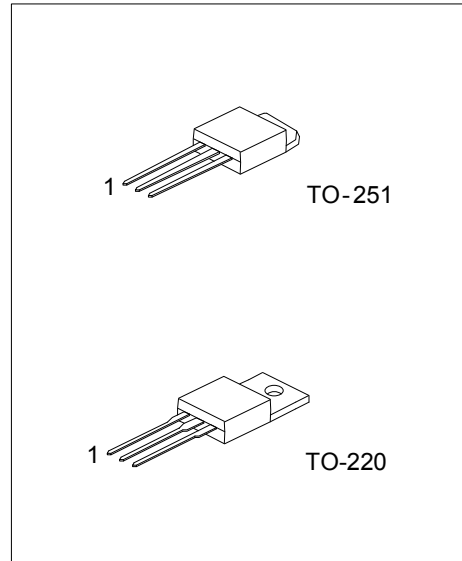


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT75N03L-TA3-T	UT75N03G-TA3-T	TO-220	G	D	S	Tube
UT75N03L-TM3-T	UT75N03G-TM3-T	TO-251	G	D	S	Tube

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

<p>UT75N03L-TA3-T</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) T: Tube (2) TA3: TO-220, TM3: TO-251 (3) G: Halogen Free, L: Lead Free</p>
--	---



■ ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$, 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	75	A
Pulsed Drain Current (Note 2)	I_{DM}	225	A
Single Pulsed Avalanche Current (Note 3)	I_{AS}	100	A
Single Pulsed Avalanche Energy (Note 3)	E_{AS}	228	mJ
Power Dissipation ($T_C = 25^\circ\text{C}$)	TO-220	75	W
	TO-251	89	
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +175	$^\circ\text{C}$

Note: 1. 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.

2. Pulse width limited by $T_{J(MAX)}$

3. $L=20\mu\text{H}$, $I_{AS}=100\text{A}$, $V_{DD}=24\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	62.5	$^\circ\text{C/W}$
	TO-251	110	
Junction to Case	TO-220	2.0	$^\circ\text{C/W}$
	TO-251	1.4	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}			100	nA
	Reverse					
ON CHARACTERISTICS (Note)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$		5	7	m Ω
		$V_{GS}=4.5V, I_D=20A$		7	10	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=15V, V_{GS}=0V, f=1.0\text{MHz}$		3298		pF
Output Capacitance	C_{OSS}			1400		pF
Reverse Transfer Capacitance	C_{RSS}			287		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=15V, I_D=60A, V_{GS}=10V, R_{GEN}=6\Omega$		20	38	ns
Turn-ON Rise Time	t_R			12	23	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			113	198	ns
Turn-OFF Fall-Time	t_F			40	78	ns
Total Gate Charge	Q_G	$V_{DS}=15V, V_{GS}=10V, I_D=75A$		48	55	nC
Gate-Source Charge	Q_{GS}			10		nC
Gate-Drain Charge	Q_{GD}			27		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage(Note)	V_{SD}	$V_{GS}=0V, I_S=75A$			1.5	V
Maximum Body-Diode Continuous Current	I_S				75	A

Note: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.