



75A, 30V N-CHANNEL POWER MOSFET

DESCRIPTION

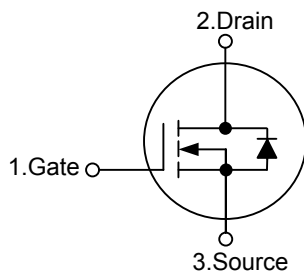
The UTC **UT75N03** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

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

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

SYMBOL

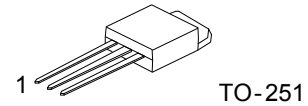


ORDERING INFORMATION

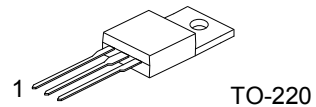
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT75N03L-TA3-T	UT75N03G-TA3-T	TO-220	G	D	S	Tube
UT75N03L-TM3-T	UT75N03G-TM3-T	TO-251	G	D	S	Tube

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

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



TO-220

■ 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	θ_{JA}	62.5	$^{\circ}\text{C/W}$
		110	
Junction to Case	θ_{JC}	2.0	$^{\circ}\text{C/W}$
		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 =250μA	30			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =20V, V _{DS} =0V			100	nA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS (Note)							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Static Drain-Source On-Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =30A		5	7	mΩ
			V _{GS} =4.5V, I _D =20A		7	10	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		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} =6Ω		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 $\leq 2\%$.

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