



UT75N02

Preliminary

Power MOSFET

75A, 25V N-CHANNEL POWER MOSFET

DESCRIPTION

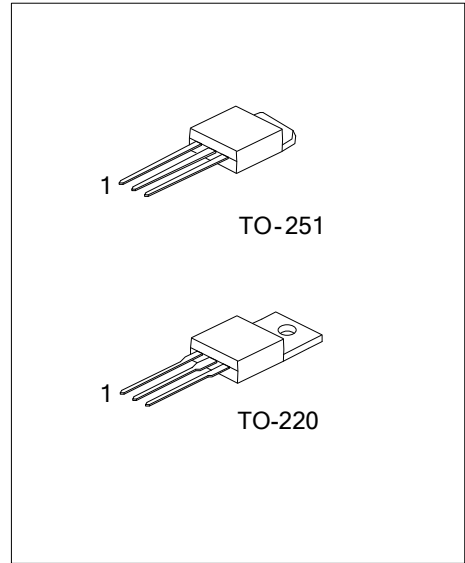
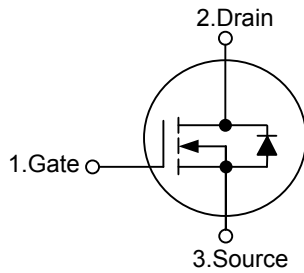
The UTC **UT75N02** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

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

* $R_{DS(ON)} < 8m\Omega @ V_{GS}=7V$

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT75N02L-TA3-T	UT75N02G-TA3-T	TO-220	G	D	S	Tube
UT75N02L-TM3-T	UT75N02G-TM3-T	TO-251	G	D	S	Tube

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

<p>UT75N02L-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220, TM3: TO-251</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER SYMBOL			RATINGS	UNIT	
Drain Source Voltage		V_{DSS}	25	V	
Gate-Source Voltage		V_{GSS}	± 20	V	
Continuous Drain Current		I_D	75	A	
Pulsed Drain Current (Note 2)		I_{DM}	170	A	
Avalanche Current		I_{AR}	60	A	
Avalanche Energy	L=0.1mH	E_{AS}	140	mJ	
Repetitive Avalanche Energy (Note 3)	L=0.05mH	E_{AR}	5.6	mJ	
Power Dissipation	TO-220	P_D	40	W	
	TO-251		28		
Junction Temperature		T_J	+	150	$^\circ\text{C}$
Storage Temperature		T_{STG}		-55 ~ +150	$^\circ\text{C}$

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 maximum junction temperature.

3. Duty cycle $\leq 1\%$.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	$^\circ\text{C/W}$
	TO-251		110	
Junction to Case	TO-220	θ_{JC}	3.13	$^\circ\text{C/W}$
	TO-251		4.53	

■ ELECTRICAL CHARACTERISTICS (T_c = 25°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 25				V
Drain-Source Leakage Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			25	μA
		V _{DS} =20V, V _{GS} = 0V, T _J = 125°C			250	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±250	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D =250μA	1.1	1.5	3	V
On-State Drain Current (Note 1)	I _{D(ON)}	V _{DS} = 10V, V _{GS} = 10V	70			A
Static Drain-Source On-Resistance (Note 1)	R _{DS(ON)}	V _{GS} = 10V, I _D = 30A		5	7	mΩ
		V _{GS} = 7V, I _D = 24A		6	8	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0 V, f=1MHz	500	0		pF
Output Capacitance	C _{OSS}		1800			pF
Reverse Transfer Capacitance	C _{RSS}		800			pF
SWITCHING PARAMETERS (Note 2)						
Turn-ON Delay Time	t _{D(ON)}	V _{DS} = 15V, V _{GS} = 10V, I _D ≈30A R _{GS} = 2.5Ω, R _L = 1Ω,	7			ns
Turn-ON Rise Time	t _R		7			ns
Turn-OFF Delay Time	t _{D(OFF)}		24			ns
Turn-OFF Fall-Time	t _F		6			ns
Total Gate Charge	Q _G	V _{DS} =0.5V _{(BR)DSS} , V _{GS} =10V, I _D =35A	140			nC
Gate Source Charge	Q _{GS}		40			nC
Gate Drain Charge	Q _{GD}		75			nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Forward Voltage (Note 1)	V _{SD}	I _F = I _S , V _{GS} = 0V			1.3	V
Continuous Current	I _S				75	A

Notes: 1. Pulse test : Pulse Width≤300μsec, Duty Cycle≤2%

2. Independent of operating temperature

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